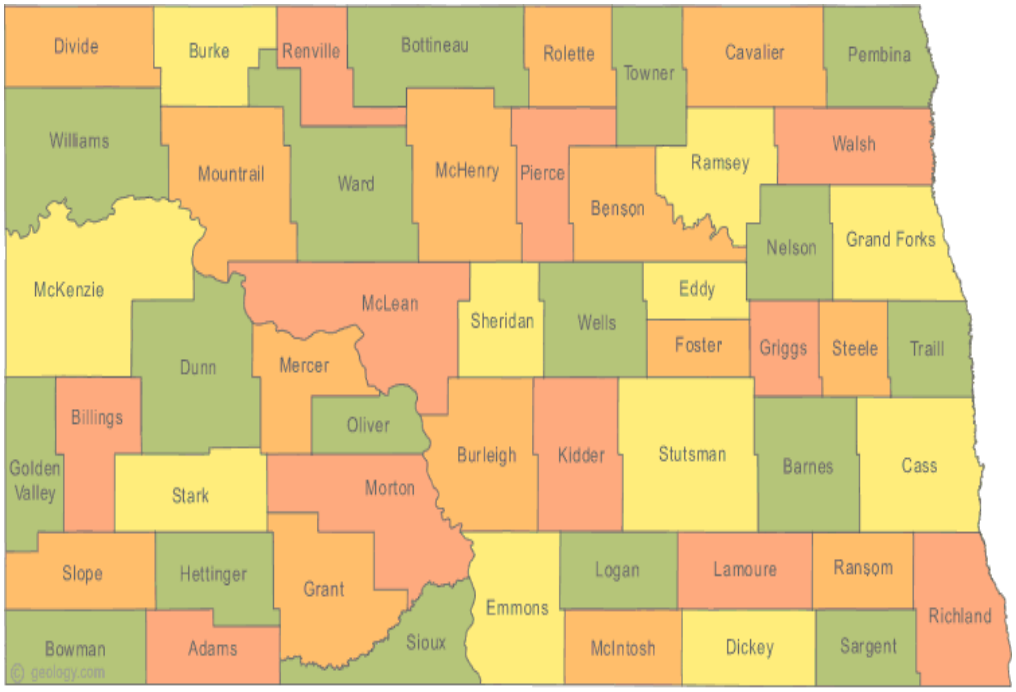
REGION 32 PUBLIC SAFETY

700 MHz RADIO COMMUNICATIONS PLAN



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Website Link:

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Bismarck, ND 58506-5511

Phone Number: 701-328-8100

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1.0 Scope

1.1 Introduction

This is the second major planning thrust for Region 32. The first was to meet the Federal Communications Commission (FCC) requirements for the NPSPAC spectrum. This planning thrust was precipitated by the establishment of the 700 MHz public safety band.

The FCC announced the allocation of 24 MHz in the 700 MHz radio spectrum subsequent to the Public Safety Wireless Advisory Committee (PSWAC) report that established need requirements throughout the country. Interoperability within and among public safety and public service providers was identified in the PSWAC report as a basic minimum essential requirement.

Subsequent to the PSWAC the FCC established a Federal Advisory Committee called the National Coordination Committee (NCC). The NCC was created to address interoperability, technology, and implementation issues to be considered for the 700 MHz spectrum. The FCC required that a Regional Plan outlining the use of public safety radio frequencies be complete and approved of by the FCC before any agency within a region would receive channels from this new allocation. The Regional 32 Plan conforms to the NCC planning guidelines. The Region 32 Plan committee's membership represents a cross-section of public safety and public service users.

North Dakota has created a State Interoperability Executive Committee (SIEC). The SIEC will work with the 700/800 MHz Advisory Committee in an advisory role. The Regional Planning Committee will be known as the 700/800 MHz Advisory Committee. The SIEC intends to include at least one member of the Region 32 RPC on its committee. The membership list is contained in Appendix B.

1.2 Purpose

The purpose of the Regional Plan is to insure that maximum public benefit is derived from use of the 700 MHz spectrum by eligible agencies. Further, the plan was developed to guide eligible entities through the application process and provide an equitable means of settling disputes concerning frequency allocations should they arise.

1.3 Regional Plan Summary

First, Region 32 is defined as the entire State of North Dakota. The broad classifications of entities eligible to apply for spectrum are defined in accord with NCC definitions. Next, to garner their participation in and support of the planning process, an attempt was made to contact all eligible agencies. These attempts are documented. The authority by which the 700/800 MHz Advisory Committee undertook these planning efforts is reviewed. A discussion follows of the process by which the initial spectrum allocation was made. Finally, a detailed discussion of the application process is given. This includes guidelines for spectrum use, application requirements, the application review process, and dispute resolution. Also included is a discussion of the future planning process.

The Region 32 Committee accepts the Computer Assisted Pre-Coordination Resource and Database (CAPRAD) database initial allocation based on population density and call volume by county. It has been noted by the committee that this allocation closely matches the description of Designated Statistical Areas by the US Department of Management and

Budget Bulletin. The Committee will use the CAPRAD database when allocating frequency resources in Region 32.

Interoperability guidelines and usage must be in accordance with the requirements of the 700/800 MHz Advisory Committee. Any conflict between the interoperability rules for National Calling and Tactical channels in this plan and 700/800 MHz Advisory Committee guidelines, the 700/800 MHz Advisory Committee guidelines will prevail.

2.0 Regional Planning Committee Leadership

At the time of transmittal of this Plan to the FCC, the following individuals serve in leadership roles in the Region 32 700/800 MHz Advisory Committee:

Chairperson:	Michael Lynk
Agency Department:	Department of Emergency Services – Division of State Radio Communications
Address:	Box 5511 Bismarck, ND 58506-5511
Phone numbers:	701-328-8100
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Vice-Chairperson	Janell Quinlan
Agency Department:	Department of Emergency Services – Division of State Radio Communications
Address:	Box 5511 Bismarck, ND 58506-5511
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3.0 Regional Planning Committee Membership

Membership in the Region 32 Regional Planning Committee known as the 700/800 MHz Advisory Committee is open to any interested party. Committee Officer requirements, voting procedures and membership attendance requirements are listed in the Region 32 Planning Committee by-laws, which can be found in Appendix A. Appendix B of this plan lists all of Region 32 initial members, their agency/affiliation and voting status.

4.0 Regional Profile

Region 32 encompasses the entire state of North Dakota, consisting of 53 counties. An alphabetical list of the individual counties can be found listed in Appendix C.

The State of North Dakota has adverse geography and a varied population base. North Dakota has a population of 672,591 (2010 Census). County population sizes range from 149,778 (Cass County) to 727 (Slope County). The primary population centers are located from east to west along U.S. Highway 2 in the northern half of the state and along Interstate-94 in the southern half of the state and north to south along Interstate-29 along the eastern border of the state.

North Dakota is the 19th largest state in the United States encompassing 70,704 square miles, stretching 340 miles from the Minnesota border on the east to the Montana border on the west and 211 miles from the border of Canada on the north to the South Dakota border on the south.

Ground elevations in North Dakota vary from 229m (750 ft) AMSL in where the Red River crosses the United States/Canada border at Pembina to White Butte at an elevation of 1,069 m (3,506 ft) AMSL, a prominent butte in Slope County, in the Badlands of southwestern part of the state.

North Dakota is comprised of four major land regions; the Red River Valley, the Missouri Plateau/Drift Prairie, the Great Plains and the Badlands.

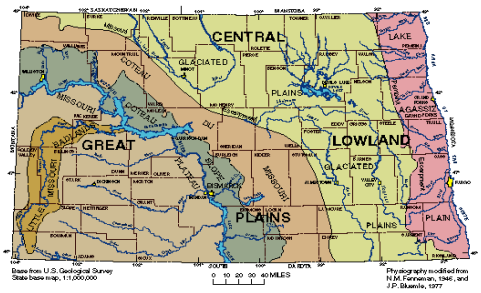
The Red River Valley covers most of the eastern portion of the state, with the Red River of the North forming the border with Minnesota. The Red River Valley is the remnant lake bed of the ancient Lake Agassiz. It is very flat, and is quite fertile.

The Missouri Plateau/Drift Prairie is located to the west of the Red River Valley. The Drift Prairie is bordered on the north by the Turtle Mountains and separated from the Red River Valley by the Pembina Hills. This area rises from 200 to 2,000 feet over the Red River Valley. The Drift Prairie is covered in lakes, stream valleys, and rolling hills.

The Great Plains covers about half of North Dakota. The Great Plains, in the central and southwestern section of the state, are hilly and rich in mineral deposits. This area rises about 300 to 400 feet above the Drift Prairie east of the Missouri River. Along the Missouri River, the land is lower. This area is called the Missouri Break. An area of rugged valleys and buttes to the south and west of the Missouri River is called the Slope.

The Badlands lie in southwestern North Dakota. The Badlands are exposed surfaces of stone and clay that erosion has shaped into striking formations; many shades of browns, reds, grays, and yellows appear in buttes, pyramids, domes, and cones. They stretch for about 190 miles north to south and range from 6 to 20 miles wide. In some areas of the Badlands the rocks contain lignite coal that has been burning for many years. The clay above these coal beds has turned bright pink and red.

North Dakota Land Regions



Region 32 (State of North Dakota) has (3) adjacent regions. They are as follows:

State: Minnesota, Region 22,
State: Montana, Region 25,
State: South Dakota, Region 38.

In previous NPSPAC 821 MHz frequency allotments, spectrum amounts disproportionate to population densities were allocated due to differing methodologies used in adjacent NPSPAC Regions and the timing of adjacent regions plan approval. In the 700 MHz band, county allotments for both narrowband and wideband channels have been developed based on population densities relative to adjacent Regions.

5.0 Notification Process

The notification process for the meetings is primarily accomplished through e-mail along with the procedures set out in the North Dakota Century Code § 44-04.

The original meeting included a notice published with the FCC and in newspapers throughout the state.

Meeting notes were taken at each meeting. (See Appendix F).

6.0 Regional Plan Administration

6.1 Operations of the Regional Plan Committee

This committee will use Robert's Rules of Order to conduct meetings. All decisions will be by clear consensus vote with each Public Safety Agency having one vote. The meetings are open to all persons and a public input time is given for anyone to express a viewpoint or to have input to the planning.

A minimum of one meeting per year will be held of the full committee. This will be announced with the procedures set out in the North Dakota Century Code § 44-04 by the Committee Chair.

The Director of State Radio will serve as the Chair of the 700/800 MHz Advisory Committee and will select the vice chair for the 700/800 MHz Advisory Committee.

If the Chair is unable to serve a complete term the Vice Chair will serve as Chair until a new State Radio Director is appointed. If both the Chair and Vice Chair are unable to serve their full terms then the Director of Department of Emergency Services will appoint replacements.

Workgroups may be formed as needed to work on specific issues. Workgroups are intended to work on details of specific issues and make recommendations to the full committee. Any changes to the Regional plan must be voted and approved by the full 700/800 MHz Advisory Committee. Workgroups are open to any who want to participate. The Chair of the 700/800 MHz Advisory Committee appoints the Chair for each workgroup.

6.2 700/800 MHz Advisory Committee

The responsibility of the Region 32 700/800 MHz Advisory Committee will be to develop a plan, be responsible for monitoring adherence to the Region 32 Plan and review applications from agencies within the region for conformance to plan requirements. The subcommittee will have access to the National Public Safety Telecommunications Council (NPSTC) Computer Assisted Pre-coordination and Resource Database System (CAPRAD) pre-coordination database system, and will review and recommend approval of applications, as they are received in the system. Applications approved by the RPC will be forwarded to the selected coordinator, then to the FCC for licensure.

The committee duties are as follows:

- Annually review and update the Region 32 Plan as necessary,
- Monitor various system(s) implementation progress,
- Communicate with applicants to determine if implementation of their systems is in accordance with provisions of their applications,
- Make recommendations to the SIEC on applicants that fail to implement systems,
- Make recommendations to resolve inter-regional issues,
- Maintain coordination with neighboring RPC's.
- Review applications for compliance to the Region 32 Plan,
- Review appeals, applicant clarifications and applicant presentations,
- Recommend approval or denial to the SIEC,
- Maintain coordination with FCC certified frequency coordinators and advisors,
- Update CAPRAD.

6.3 Procedure for Requesting Spectrum Allotments

A. Upon FCC approval of this Plan, Region 32 will announce to the region that 700 MHz public safety channels are available in the Region and that channels have been assigned to pool allotments to counties within the Region. All available methods will be used to notify public safety entities of channel availability in the Region. All requests will be considered on a first come, first served basis. Region 32 supports the National Coordination Committee Pre-Assignment Rules and Recommendations, and will use these guidelines as a template to determine if an application submitted to the 700/800 MHz Advisory Committee meets Regional Planning standards. It is recommended that applicants familiarize themselves with these recommendations prior to submitting applications for Region 32 700 MHz public safety system implementation.

Other consideration taken into consideration for determination of priority of application will be:

- Users who are involved in the protection of life and property,

- Multi-agency shared systems that multiple agencies agree to construct a common infrastructure (i.e. State, City, County, and others),
- Large agencies with multiple divisions constructing a common system for all to use (i.e. a large city or county with multiple divisions),
- Trunked use of the frequencies,
- Approved funding to construct the system using the 700 MHz frequencies,
- A statement of the future intentional actions of any currently licensed channels that will be replaced by a new 700 MHz system, and how it may benefit other agencies in the State by releasing these channels back into the Public Safety pool.

Agencies will need to fully document technical information, sites, tower heights, area of coverage, ERP of transmitter sites, along with any other technical information required for committee review and coordinator review. Agencies are expected to construct systems with maximum signal levels in their coverage area and minimum signal levels in co-channel user's coverage areas. Coverage area in the context of this plan will be defined as the geographical boundaries of agency(s) served by the system plus eight miles. The committee realizes that radio signals don't stop at political borders. Our attempt is to maximize the use of the frequencies by packing as many users as possible per channel.

In order to maintain accurate records in the CAPRAD database, applicants will provide Region 32 with notification of entering it into CAPRAD and with physical copies of their application along with associated documentation for committee review. The committee will review the FCC 601 form into the CAPRAD database before the application is forwarded to the FCC certified coordinators

In general and unless otherwise noted, the Region 32 Committee will adhere to the published National Coordination Committee Implementation Guidelines for 700 MHz Public Safety Regional Planning Committees.

B. When applying for new 700 MHz channels, the Committee looks forward to 700 MHz applicants working with neighboring agencies to promote and continue the establishment of interoperability within their community and allow for the equitable distribution of existing spectrum allocations to promote efficient frequency use when applying for 700 MHz spectrum. Region 32 expects applicants to be cognizant of the fact that moving to the 700 MHz band may create a degree of isolation between themselves and neighboring agencies, and Region 32 looks forward to working with these applicants on a case-by-case basis on how to maintain spectrum availability in their area, while continuing to promote interoperable communications.

C. To request channels from Region 32, a full application package must be submitted to the Committee in physical written form after entry in the CAPRAD database http://www.caprad.org.

The application must include:

- An FCC Form 601,
- A short description of the proposed system,
- A justification for the additional spectrum,
- An interference prediction map using the current version of TIA/EIA TSB 88 guidelines, Maps showing all interference predicted in the proposed system,
- Documents indicating agency-funding commitments sufficient to fund the development of the proposed system(s)
- An indication as to when they will migrate from their existing system to the new system.

D. The Chair will distribute the request to all other agencies with allotments in the plan for review and approval electronically. Absent a protest, the 700/800 MHz Advisory Committee will approve the application and submit it through the CAPRAD database to the applicant's preferred FCC-certified frequency coordinator for processing. This process meets the requirements of Rule 90.176 (c).

The CAPRAD database will reflect the approved application and place the channels for the proposed system in "pre-license" status.

E. Allocation Disputes: An agency may protest a proposed system within 30 calendar days of the original distribution. Protests will only be considered if the allocation does not conform to plan criteria or objecting agency or the Chairperson can show harmful interference is likely based on the information submitted by the agency requesting the new allocation. If an agency with pre-licensed/Region approved co-channel or adjacent channel allocations objects to a proposed allocation due to concerns about potential interference, the objecting agency may request field tests be done to confirm or refute interference potential.

The completion of these field tests will be required for Regional application approval. Any costs associated with field tests or any other requirement to obtain Region 32 plan approval is the responsibility of the agency submitting application to Region 32.

The parties involved must resolve the allocation dispute and notify the Region Chair within 14 calendar days. If the parties involved cannot resolve the allocation dispute within that timeframe, then a special full Committee meeting will be scheduled to consider and vote on the protest. If approved, the application will be submitted through the CAPRAD database to the applicant's chosen FCC-certified frequency coordinator for processing.

F. Lower Power "Campus Eligible" General Use Channels:
In the implementation of 700 MHz public safety spectrum throughout Region 32, there may be opportunities for increased channel reuse when developing radio systems for "campus" type operations. Examples of those who may capitalize on this opportunity include hospitals, stadiums, malls or places of public gathering, public universities, transit systems and ports. While these channels have been designated in county pool allotments with proper designations, they do not enjoy the benefits of countywide channels in that they are not cleared for usage over a wide area. In many instances, facilities require a smaller or more specific geographical coverage area than assumed in the initial channel packing plan and may be able to be reused more efficiently. These "campus" type systems also, in many cases, require in-building or confined space/tunnel radio coverage or communications along a linear pathway, such as a maintenance or right of way. Public safety channels can be allotted to this type operation in a region and can lead to effective system development, along with increased spectral efficiency, if power levels and Area of Protection (AOP) of the area are taken into account in system planning. These parameters must be established appropriate to the area of coverage. In order to facilitate this effective method of system implementation, channels have been identified in certain areas of Region 32 that may be utilized in a smaller service area. These channels are NOT eligible to be utilized throughout the county they are allotted to and the following criteria must be adhered to when requesting channels from Region + for operations of this type:

The 50dBu service contour of the proposed system must not exceed an area more than 2 miles from the proposed service area. When this 2-mile distance extends to an adjacent region, the applicant must obtain concurrence from the adjacent region. Reduced external antenna height, along with reduced ERP, directional antennae, distributed antenna systems,

radiating "leaky coax," are all tools that should be utilized in the development of these type systems. Region 32 will ensure the development of these types of systems will in no way interfere with co-channel or adjacent channel users within Region 32 or Region 32's adjacent regions. The Chairperson, or a majority of the members of the region, has the authority to request and require engineering studies from the applicant that indicate no harmful interference will be introduced to any co-channel or adjacent channel existing user prior to application approval. For 12.5/25 kHz co-channel assignments, the 50dBu service contour of the proposed stations will be allowed to extend beyond the defined service area for a distance no greater than 2 miles. An adjacent/alternate 12.5/25 kHz channel shall be allowed to have 10 its 60 dBμ (50,50) contour touch, but not overlap the 40dBμ service (50,50) contour of an adjacent/alternate system being protected. Evaluations should be made in both directions to ensure compliance. The approval of systems utilizing county allotment channels labeled "Campus", are subject to approval of the Region 32 700 MHz 700/800 MHz Advisory Committee. They are the final authority on parameters associated with "campus" type operations.

If Region 32 receives an application for low power fixed use and the proposed service contour encroaches onto an adjacent region prior to the channel allotted to the region being implemented in a specific system, the application must be modified so the service contour does not encroach into the adjacent region **or** the applicant must supply the Region 32 700/800 MHz Advisory Committee with written concurrence from the adjacent region permitting the original design.

6.4 Procedure for Frequency Coordination

Before applicants submit an application to one of the FCC recognized frequency coordinators, the application must be reviewed at a frequency meeting of the Committee. The Committee will review the application to ensure it complies with all elements of the Regional Plan. This will NOT be a review to ensure the application form meets FCC requirements for filing.

The applicants must submit a copy of the FCC application and supporting documents to the Advisory Committee Chair. An interference prediction map must be included in the documentation. TIA/EIA TSB88-A (or latest version) guidelines will be used to produce the interference map. The map must show all interference predicted using TSB88-A guidelines. Any agency with co-channel or adjacent channel allotments may request field tests of signal levels to verify interference signal levels. Agencies must be prepared to conduct these field tests if a request is made.

The frequency meetings will be held as needed to review applications. The FCC certified frequency coordinators will be notified of the meetings.

6.5 Adjacent Region Spectrum Allocation and Coordination

Region 32 shares borders with State of Minnesota, Region 22, State of Montana, Region 25 and State of South Dakota, Region 38.

Region 32 will coordinate channel allocations with all its bordering regions by using the CAPRAD database. This tool will ensure adjacent state notification as well as FCC Certified Frequency Coordinator notification.

The Chair will send final draft copies of this plan to the conveners or Chair, as appropriate, to each adjacent region. Adjacent regions should be able to satisfy voice and narrowband

data requests along their border areas with Region 32. If any region has problems satisfying requests in an adjacent area, the ND 700/800 MHz Advisory Committee pledges to work with this region or any of the other surrounding regions to resolve any issues on a case by case basis.

6.6 Canadian Border Issues

Region 32 shares a border with Canada. The County of Boundary is impacted by any border spectrum agreements. State of North Dakota spectrum use is also impacted in those counties. Region 32 requests input to the FCC for any spectrum sharing agreements with Canada. Any agreement that impacts allotments to Boundary County will impact the entire allotment list for Region 32. Region 32 is ready to help the FCC in any way in working out spectrum sharing agreements with Canada with minimum impact to Region 32. Agencies located in the Border area with Canada should note the following conditions. Public safety licenses are granted subject to the conditions as set forth in 47 C.F.R. § 90.533 and Arrangement Q referenced in Appendix L. Public safety transmitters operating within 120 km or 75 miles of the Canadian border must accept any interference that may be caused by operations of UHF television broadcast transmitters in Canada and that conditions may be added during the term of the license if required by the terms of the international agreements between the United States and the government of Canada, as applicable, regarding the non-broadcast use of the 764-776 MHz and 794-806 MHz bands. Channels 1-12 and 949-966 have been determined that these are United States/Canada Shared. Channels 301-302 have been determined that these channels are primary to Canada rather than the United States.

6.7 Regional Plan Updates

This section is focused on instances when actions taken by the FCC or the 700 MHz Regional Planning Committee itself necessitate a change in the regional plan. 700 MHz Plan changes are required to be submitted to the FCC under Docket 02-378.

700 MHz PLAN MODIFICATION REQUIRED FOR ALL REGIONS
October 24, 2014 FCC Report and Order 14-172
Reserve Channel Reclassification-

The language below is from the FCC's Report and Order indicated above that outlines the changes 700 MHZ RPC's need to make to their existing plans with the former Reserve channels being reallocated to General Use.

Discussion (FCC 14-172)
Paragraph 39. We conclude that the 700 MHz Reserve Channels should be added to the General Use pool and made available for multiple uses under RPC administration. The demand for 700 MHz narrowband spectrum has significantly increased in recent years, particularly in large urban areas. Some 700 MHz licensees have channel requirements that have surpassed what was envisioned in the original channel allotment process. Moreover, in Los Angeles, Washington DC, and other major metropolitan areas, the Reserve Channels offer much-needed capacity for relocating T-Band public safety licensees as required by the Public Safety Spectrum Act.

Paragraph 40. To accommodate these spectrum demands, we adopt the following overall approach. Rather than dedicating the Reserve Channels exclusively for use with deployable systems, **we require the RPCs to administer the Reserve Channels subject to the following.**

In the non T-Band areas, up to eight 12.5 kilohertz channels may be dedicated for temporary deployable trunked use and the rest for General Use, including low-power vehicular repeaters. In the T-Band markets, all twenty-four Reserve Channels will be available for General Use with priority given to relocating T-Band incumbents that commit to return an equal amount of T-Band channels.

The RPCs shall submit channel plans consistent with this Report and Order within six months from publication in the Federal Register.112 We encourage T-Band licensees transitioning to the former Reserve Channels to consider using spectrally efficient 6.25 kHz technology given the limited number (24) of available former Reserve Channels.

Regional Planning Committees, per the FCC language above, have a number of options to consider when repurposing the former Reserve Channels within their regions. Those regions that include T-Band areas must prioritize the assignment of all 24 Reserve Channels to those T-Band licensees. The FCC has recommended that up to eight (8) Former Reserve Channels be designated for nationwide deployable use and the National Public Safety Telecommunications Council (NPSTC) and the National Regional Planning Council (NRPC) have submitted to the FCC their recommendations for six (6) Former Reserve Channels that should be considered for nationwide deployable use, in bold in the Reserve Channel List below:

FCC Channel	CAPRAD Channel Label	Base Frequency	Mobile Frequency	Status
37-38	General Use-D	769.231250	799.231250	Recommended for Nationwide Deployable Use
61-62	General Use-D	769.381250	799.381250	Recommended for Nationwide Deployable Use
77-78	General Use	769.481250	799.481250	Recommended for Vehicular Repeater Use (MO3)
117-118	General Use-D	769.731250	799.731250	Recommended for Nationwide Deployable Use
141-142	General Use-D	769.881250	799.881250	Recommended for Nationwide Deployable Use
157-158	General Use	769.981250	799.981250	Recommended for Vehicular Repeater Use (MO3)
197-198	General Use	770.231250	800.231250	Available
221-222	General Use	770.381250	800.381250	Available
237-238	General Use	770.481250	800.481250	Available
277-278	General Use	770.731250	800.731250	Available
301-302	General Use	770.881250	800.881250	Primary to Canada
317-318	General Use	770.981250	800.981250	Available
643-644	General Use	773.018750	803.018750	Available
683-684	General Use	773.268750	803.268750	Available
699-700	General Use	773.368750	803.368750	Available
723-724	General Use	773.518750	803.518750	Available
763-764	General Use	773.768750	803.768750	Available
779-780	General Use	773.868750	803.868750	Available
803-804	General Use	774.018750	804.018750	Available
843-844	General Use	774.268750	804.268750	Available
859-860	General Use	774.368750	804.368750	Recommended for Vehicular Repeater Use

				(MO3)
883-884	General Use-D	774.518750	804.518750	Recommended for Nationwide Deployable Use **(Alt CC)****
923-924	General Use	774.768750	804.768750	Recommended for Vehicular Repeater Use (MO3)
939-940	General Use-D	774.868750	804.868750	Recommended for Nationwide Deployable Use **(Pri CC)****

** Channels 883-884 and 939-940 are designated as Alternate and Primary Control Channels for the Nationwide 700 MHz Deployable Trunked Systems.

It should be noted that the former Reserve channels identified in this modification have limitations as to their availability within the Mexican and Canadian border regions subject to treaties between the United States, Mexico and Canada. Impacted regional planning committees should identify which of these new General Use channels are available for coordination within these international border areas and make decisions as to which channels should be utilized in which areas to effectively utilize these additional General Use assignments. Appendix A shows each former Reserve Channel and it encumbrances at the Mexican and Canadian border. See Sections 7.8 and 7.9 above for more detail.

Subsequently, it is recommended that each 700 MHz regional planning committee modify their existing plan to allow for the use of channels 37-38, 61-62, 117-118, 141-142, 883-884, and 939-940, other than in regions that include FCC designated T-Band areas where all 24 12.5 KHz former Reserve channels are prioritized for existing T-Band licensees. While regions are not required to dedicate the above listed 6 channels for nationwide deployable 700 MHz trunked systems, it is strongly recommended that the region solicit interest in their region with regard to the proposed use of these channels and which agencies, if any, would be interested in providing or accessing deployable equipment to support the use of these 6 channels.

As indicated in the list above, Non-Deployable Former Reserve Channel Assignments available in each region are: 77-78, 157-158, 197-198, 221-222, 237-238, 277-278, 317-318, 643-644, 683-684, 699-700, 723-724, 763-764, 779-780, 803-804, 843-844, 859-860, 923-924. Some of the former Reserve channels can be utilized in regions for vehicular repeater operations (MO3) and the list above identifies channels that can be utilized for 800 MHz MO3 operations with sufficient duplexer spacing and other channels could be utilized for MO3 operations with non-800 MHz systems. Other than in the regions that include T-Band areas, regional planning committees can utilize the implementation of the former Reserve to General Use channels in any manner they deem appropriate. Below are a number of recommendations that regions can utilize in their plan modifications. Regions are encouraged to engage their members in conversations and discussions regarding the best utilization of these channels in their 700 MHz plan.

Recommendation #1. **(6 Nationwide Deployable channels, 4 MO3 General Use and 14 flexible General Use allotments)** The Region XX 700 MHz Regional Planning Committee submits this 700 MHz plan modification to the Commission in accordance with the Report and Order (14-172) and the requirements assigned to each regional planning committee therein.

Region XX will modify its existing 700 MHz plan utilizing the following channel plan for the former Reserve Channels:

We add channels
37-38, 61-62, 117-118, 141-142, 883-884, and 939-940
To be utilized as Nationwide Deployable Trunked Channels consistent with the NPSTC/NRPC recommendation to the FCC utilizing the recommended system and unit identifiers from NPSTC/NRPC.

We add channels
77-78 and 157-158
to be utilized as 2 watt vehicular repeater frequencies (MO3), to be coordinated for and specifically for use with 800 MHz systems in the region due to the needed separation between these frequencies and those utilized by public safety in the 800 MHz band.

We add channels
859-860 and 923-924
As 2 watt non-800 MHz vehicular repeater frequencies (MO3) to be coordinated for use with other systems in the region.

We modify the Region XX 700 MHz plan to utilize the remaining channels as "floating allotments" to supplement the existing General Use allotments in each region: 197-198, 221-222, 237-238, 277-278, 317-318, 643-644, 683-684, 699-700, 723-724, 763-764, 779-780, 803-804, 843-844. Allowing these remaining channels to supplement the existing General Use allotments utilized within the region will promote maximum flexibility of the use of these channels in each region.

Lastly, Region XX 700 MHz Regional Planning Committee encourages the Commission to permit the introduction of new 700 MHz General Use channels in a flexible manner where the channels are available to all existing allotments where the channel use can be most optimum. 700 MHz Regional plan modifications need to reiterate the Intra-Region and Inter-Region coordination protocol in use currently in the region and how these new flexible allotments will be subject to the same coordination protocol within the region. Finally, Region XX will utilize the same intra-region and inter-region coordination practices with these new, flexible General Use allotments as required in their current plan.

Recommendation #2 (6 Nationwide Deployable channels and 18 flexible General Use allotments)

The Region XX 700 MHz Regional Planning Committee submits this 700 MHz plan modification to the Commission in accordance with the Report and Order (14-172) and the requirements assigned to each regional planning committee therein.

Region XX will modify its existing 700 MHz plan utilizing the following channel plan for the former Reserve Channels:

We add channels
37-38, 61-62, 117-118, 141-142, 883-884, and 939-940
To be utilized as Nationwide Deployable Trunked Channels consistent with the NPSTC/NRPC recommendation to the FCC utilizing the recommended system and unit identifiers from NPSTC/NRPC.

We modify the Region XX 700 MHz plan to utilize the remaining channels as "floating allotments" to supplement the existing General Use allotments in each region: **77-78, 157-158**, 197-198, 221-222, 237-238, 277-278, 317-318, 643-644, 683-684, 699-700, 723-724, 763-764, 779-780, 803-804, 843-844, **859-860 and 923-924**. Allowing these remaining channels

to supplement the existing General Use allotments utilized within the region will promote maximum flexibility of the use of these channels in each region.

Lastly, Region XX 700 MHz Regional Planning Committee encourages the Commission to permit the introduction of new 700 MHz General Use channels in a flexible manner where the channels are available to all existing allotments where the channel use can be most optimum. 700 MHz Regional plan modifications need to reiterate the Intra-Region and Inter-Region coordination protocol in use currently in the region and how these new flexible allotments will be subject to the same coordination protocol within the region. Finally, Region XX will utilize the same intra-region and inter-region coordination practices with these new, flexible General Use allotments as required in their current plan.

Recommendation #3 (24 flexible General Use allotments)

The Region XX 700 MHz Regional Planning Committee submits this 700 MHz plan modification to the Commission in accordance with the Report and Order (14-172) and the requirements assigned to each regional planning committee therein.

Region XX will modify its existing 700 MHz plan utilizing the following channel plan for the former Reserve Channels:

We modify the Region XX 700 MHz plan to utilize ALL former Reserve channels the as "floating allotments" to supplement the existing General Use allotments in each region: 37-38, 61-62, 77-78,117-118, 141-142, 157-158,197-198, 221-222, 237-238, 277-278, 317-318, 643-644, 683-684, 699-700, 723-724, 763-764, 779-780, 803-804, 843-844, 859-860, 883-884 and 923-924, 39-940**,** . Allowing these remaining channels to supplement the existing General Use allotments utilized within the region will promote maximum flexibility of the use of these channels in each region.

Lastly, Region XX 700 MHz Regional Planning Committee encourages the Commission to permit the introduction of new 700 MHz General Use channels in a flexible manner where the channels are available to all existing allotments where the channel use can be most optimum. 700 MHz Regional plan modifications need to reiterate the Intra-Region and Inter-Region coordination protocol in use currently in the region and how these new flexible allotments will be subject to the same coordination protocol within the region. Finally, Region XX will utilize the same intra-region and inter-region coordination practices with these new, flexible General Use allotments as required in their current plan.

6.8 Air to Ground Channels

In its Report and Order (FCC 14-172) dated October 24, 2014 the FCC redesignated the 700 MHz Secondary Trunked channels and reserved them for specific Air to Ground communications between low-altitude aircraft and associated ground stations. The secondary channels are the most suitable channels for this specific Air to Ground purpose as they have no incumbents and little risk of co-channel interference since there are no current Secondary Trunked licensees.

The eight (8) 12.5 KHz Air to Ground channels are listed below:

FCC Channel	Base Frequency	Mobile Frequency	Status
21-22	769.131250	799.131250	Available

101-102	769.631250	799.631250	Available
181-182	770.131250	800.131250	Available
261-262	770.631250	800.631250	Available
659-660	773.118750	803.118750	Available
739-740	773.618750	803.618750	Available
819-820	774.118750	804.118750	Available
899-900	774.618750	804.618750	Available

The FCC also adopted a two (2) watt ERP limit for the use of these channels along with restricting airborne use of these channels to altitudes below 1500 feet Above Ground Level (AGL). To limit area impacted by the airborne operations. Given the proximity of these Secondary Trunking Channels to the designated Interoperability channels in the 700 MHz band (immediately adjacent to), the FCC assigned the responsibility for coordinating these channels to each state while permitting aircraft use on both the upper and lower portion of each Secondary Trunked Channel pair.

As indicated above, each state has been tasked with coordinating the Air to Ground Channels. If a state wants to shed that responsibility and have its respective 700 MHz regional planning committee(s) assume the responsibility of coordinating these Air to Ground channels because they are better prepared to process 700 MHZ license applications the channels or the state is just not in a position to coordinate such channels, each state must request, in writing to the FCC, that this responsibility be re-assigned to the respective regional planning committee(s) in their state.

Sample language outlining what could be included in such a request is below:

Date

Chief, Public Safety & Homeland Security Bureau
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Dear Sir

On behalf of the State of XX- Statewide Interoperability Executive Committee (MOSIEC), we request that the administration and coordination of the new 700 MHz Air to Ground 700 MHz Narrowband channels, redesignated by the Commission from the previous Secondary Trunked 700 MHz narrowband Channels, be administered by the Region XX (or multiple) 700 MHz Regional Planning Committee(s). A list of the eight redesignated channels redesignated to Air to Ground channels by the FCC is below.

The Statewide Interoperability Executive Committee has a long history of administering and developing technical parameters and usage guidelines for interoperability channels as designated by the Commission in the 700 MHz band as well as interoperability channels designated by the Commission in the VHF and UHF public safety spectrum band. The administration of interoperability channels, many of which are licensed by rule (mobile and portable subscribers) and require the issuance of guidance to the user base, however, is a coordination task much different than what will be required for the new 700 MHz Air to Ground channels as Air to Ground usage has an expectation from its users base to be more

used in more internal, agency specific communications than interoperability channels are used. Subsequently, we feel the Region XX 700 MHz Regional Planning Committee are better served to coordinate these channels, as necessary, within Region XX.

We have reached out to the Region XX 700 MHz Regional Planning Committee and advised them of our intent to request the administration and coordination of these Air to Ground channels be tasked to the Regional Planning Committee and to ensure consistent coordination of the 700 MHZ band in the region, they concur with this request.

FCC Channel Number	Base Frequency Center	Mobile Frequency Center
21-22	769.13125 MHz	799.13125 MHz
101-102	769.63125 MHz	799.63125 MHz
181-182	770.13125 MHz	800.13125 MHz
261-262	770.63125 MHz	800.63125 MHz
659-660	773.11875 MHz	803.11875 MHz
739-740	773.61875 MHz	803.61875 MHz
819-820	774.11875 MHz	804.11875 MHz
899-900	774.61875 MHz	804.61875 MHz

Should any questions arise from this request, please do not hesitate to contact me.

Regards

Director of XX Statewide Interoperability Executive Committee

Each state that seeks to relinquish its responsibility for coordinating 700 MHz Air to Ground channels needs to request that responsibility be reassigned individually to the FCC.

7.0 System Design/Efficiency Requirements

7.1 Interference Protection

The frequency allotment list will be based on an assumption that systems will be engineered on an interference-limited basis, not a noise floor-limited basis. Agencies are expected to design their systems for maximum signal levels within their coverage area and minimum levels in the coverage area of other co-channel users. Coverage area is normally the geographical boundaries of the Agency(s) served plus a three to five mile area beyond.

Systems should be designed for minimum signal strength of 40 dBμ in the system coverage area while minimizing signal power out of the coverage area. TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dBμ, or greater, signal in all systems coverage areas. This may require patterned antennas and extra sites compared to a design that assumes noise limited coverage.

7.2 Spectrum Efficiency Standards

Initial allotments will be made on the basis of 25 kHz channels. To maximize spectrum utilization, prudent engineering practices and receivers of the highest quality must be used in all systems. Given a choice of radios to choose from in a given technology family, agencies should use the units with the best specifications. This plan will not protect agencies from interference if their systems are under-constructed (i.e; areas with the established service area having minimum signal strength below 40 dBu), or the systems utilize low quality

receivers. The applicant's implementation of prudent engineering practices will be encouraged by the 700/800 MHz Advisory Committee at all times.

It is the eventual goal of the FCC and the public safety community for radio equipment to meet the requirement of one voice channel per 6.25 KHz of spectrum. When applying for channels within Region 32, the applicants should acknowledge the deadline for converting all equipment to 6.25 kHz or 6.25 kHz equivalent technology is 12/31/2016. For narrowband mobile data requests, one mobile data channel will consist of two (2) 6.25 kHz channels/one (1) 12.5 kHz channel. Narrowband 6.25 kHz channels can be aggregated for data use to a maximum bandwidth of 25 kHz. As 6.25 kHz migration evolves, an agency that creates any "orphaned" 6.25 kHz channels should realize that these channels would be allocated to nearby agencies requesting channels to maintain consistent grouping and utilization of 25 kHz blocks within the region.

Region 32 encourages small agencies to partner with other agencies in multi-agency or regional systems as they promote spectrum efficiency and both small and large agency capacity needs can be met. Loading criteria can also be achieved in multi-agency systems that will allow greater throughput for all agencies involved than that which could be achieved individually.

7.3 Orphaned Channels

The narrowband pool allotments with Region 32 will have a channel bandwidth of 25 kHz. These 25 kHz allotments have been characterized as "Technology Neutral" and flexible enough to accommodate multiple technologies utilizing multiple bandwidths. If agencies choose a technology that requires less than 25 kHz channel bandwidth for their system, there is the potential for residual, "orphaned channels" of 6.25 kHz or 12.5 kHz bandwidth immediately adjacent to the assigned channel within a given county area.

An orphan channel may be used at another location within the county area where it was originally approved, if it meets co- and adjacent channel interference criteria. Region 32 will utilize **"county areas"** as guidelines for channel implementation with the area of Region 32. The definition of **"county area"** in this plan is the geographical/political boundaries of a given county, plus a distance of up to 10 miles outside of the county.

If the channel, or a portion of a channel, is being moved into a "county area" that is within 30 miles of an adjacent region, Region 32 will receive concurrence from the affected region. By extending the "county area" by a designated distance, it is anticipated this will increase the possibility that orphaned channel remainders will still be able to be utilized within the "county area", and reduce the potential for channel remainders to be forced to lay dormant and used with a county channel allotment. These movements will be documented on the National Public Safety Telecommunications Council CAPRAD database.

If the "orphaned channel" remainder does not meet co-channel and adjacent channel interference criteria by moving it within the "county area" as listed above, and it is determined by the region that the "orphaned channel" cannot be utilized in the region without exceeding the distance described in the "county area" listed above, Region 32 will submit a plan amendment to the FCC to repack the channel to a location where its potential use will maintain maximum spectral efficiency. This FCC plan amendment will require affected region concurrence.

When in the best interest of public safety communications and efficient spectrum use within the Region, the 700/800 MHz Advisory Committee shall have the authority to move orphan channel allotments, and/or co-/adjacent-channel allotments affected by the movement of

orphan channels, within its "county areas", which are defined above. This is to retain spectrum efficiency and/or minimize co-channel or adjacent channel interference between existing allotments within the region utilizing disparate bandwidths and technologies.

8.0 Allocation of Narrowband "General Use" Spectrum

8.1 Introduction

The Region 32 Technical Subcommittee recommends that allotments be made on the basis of one 25 KHz channel for every two (2) voice channel requests and one 12.5 KHz channel for each narrowband data channel request. This recommendation is approved by the full Committee and is part of this plan. Allotments will be made in 25 KHz groups to allow for various digital technologies to be implemented. All agencies requesting spectrum during the initial filing window (See Section "6.3") will be allocated channels if plan requirements are met. Agencies using Frequency Division Multiplexing (FDMA) will be expected to maintain 12.5 KHz equivalency when developing systems and will be required to utilize BOTH 12.5 KHz portions of the 25 KHz block. In most cases, this will require the geographic separation of each 12.5 KHz adjacent channel. In order to promote spectrum efficiency, Region 32 will ensure that systems allocated 25 KHz channel blocks will utilize all of the channel and not "orphan" any portions of a system designated channel (See Section "7.3").

8.2 Low Power Secondary Operations

To facilitate portable operation by any licensee, and to provide channels for such operation without impacting the use of primary channels, certain low power secondary use will be permitted. Any public safety entity otherwise licensed to use one or more channels under this Plan may receive authorization to license any additional channel for secondary use, subject to the following criteria:

- All operation of units on such authorized channels will be considered secondary to other licenses on both co-channel and adjacent channels,
- No channels on, or adjacent to, those designated in the Plan for wide area operation and/or mutual aid use will be authorized,
- Channels will be authorized for use in specific areas only, such areas to be within the licensees authorized operational area,
- Maximum power will be limited to 6 watts ERP,
- Use aboard aircraft is prohibited,
- Applications for channels may be submitted to the Committee for consideration at any time and must be accompanied by a showing of need. The Committee may select and authorize licensing of these secondary use channels after consideration of potential interference to co-channel and adjacent channel allotments, allocations and licensees. Authorization may be granted for use of any suitable channel, without prior allotment or allocation to the requesting agency,
- In the event the channels authorized for low power secondary operation are needed by others during any window opening for reassignment, no protection will be afforded to the licensed secondary user, and they may be required to change frequencies or surrender licenses to prevent interference to primary use channels.

8.3 Low Power Channels

The FCC in the 700 MHz band plan set aside channels 1 - 8 paired with 961 – 968 and 949 – 958 paired with 1909 – 1918 for low power use for on-scene incident response purposes using

mobiles and portables subject to Commission-approved 700/800 MHz Advisory Committee regional plans. Transmitter power must not exceed 2 watts (ERP).

Channels 9 –12 paired with 969 – 972 and 959 – 960 paired with 1919 – 1920 are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP). Channels 1-12 and 949-966 have been determined that these are United States/Canada Shared.

These channels may operate using analog operation. To facilitate analog modulation this plan will allow aggregation of two channels for 12.5 kHz bandwidth. On scene temporary base and mobile relay stations are allowed (to the extent FCC rules allow) with an antenna height limit of 6.1 meter (20 feet) above the ground. However, users are encouraged to operate in simplex mode whenever possible. This plan does not limit use to only analog operations, these channels are intended for use in a wide variety of applications that may require digital modulation types.

In its dialog leading up to CFR §90.531 allocating the twenty-four low power 6.25 kHz frequency pairs (of which eighteen fall under RPC jurisdiction), the Federal Communications Commission (FCC) suggested that there is a potential for multiple low power applications, and absent a compelling showing, a sharing approach be employed rather than making exclusive assignments for each specific application because low power operations can co-exist [in relatively close proximity] on the same frequencies with minimal potential for interference due to the 2 watt power restriction.

Whereas advantages exist in not making assignments, the reverse is also true. If, for example, firefighters operate on a specific frequency or set of frequencies in one area, there is some logic in replicating that template throughout the region for firefighter equipment. If there are no assignments, such a replication is unlikely.

In seeking the middle ground with positive attributes showing up both for assignments and no assignments, we recommend the following regarding assignments associated with the eighteen narrowband channels for which the RPC's have responsibility.

- Channel #'s 1-4 and 949-952 are set aside as generic channels for use by public safety agencies operating within Region 32, and the complementary channel #'s 961-964 and 1909-1912 are set aside as generic channels also for use by public safety agencies including GPS differential correction telemetry for channels 961-964 and 1909-1912 likewise operating within Region 32.

- Channel #'s 5-8 are designated as Fire Protection channels for licensing and exclusive use by the Fire Protection discipline, and the complementary channel #'s 965-968 are set aside as Law Enforcement channels also for licensing and exclusive use by the Law Enforcement discipline.

- Channel #'s 955-956 are set aside as Fire Protection channels for licensing and exclusive use by the Fire Protection discipline, and the complementary channel #'s 1915-1916 are set aside as Law Enforcement channels also for licensing and exclusive use by the Law Enforcement discipline.

- Channel #'s 957-958 are set aside as Fire Protection/Law Enforcement channels for licensing and use by the Fire Protection and Law Enforcement disciplines, and the complementary channel #'s 1917-1918 are set aside as Fire Protection/Law Enforcement.

Simplex operations may occur on either the base or mobile channels. Users are cautioned to coordinate on scene use among all agencies involved. Users should license multiple channels and be prepared to operate on alternate channels at any given operational area.

8.4 System Implementation

This section will be reevaluated when the decision has been made to implement this plan based on what is happening with the TV Broadcaster or National Broadband Plan.

If our region is NOT affected by interference potential from existing television stations operating in the 700 MHz spectrum, something on this order will be inserted into the following section of our 700 MHz Plan. An example is provided below:

Region 32 will not be affected by interference potential from existing television stations operating in the 700 MHz spectrum. A notification, in writing, has already been issued to secondary television station operators / licensees of the intended use of 700 MHz spectrum in Region 32 (APPENDIX "X"). This allows for an applicant to have an immediate review of their application package and, when approved, meet intended construction timeframes identified within the application submittal.

After allocation of channels (Section 6.3) the agency must release a System RFP and sign a contract with a vendor within one year of the channel allocation. If an agency does not implement in the timeframes specified, that agency's allotment may be removed from the allotment list. An Agency may file a request with the Region Chair for an extension of time to implement. The request should include all details describing why the agency has not implemented and a new implementation schedule. The Committee Chair will advertise this request and set a date for the full committee to vote on the request. If no request for extension is received or the Committee votes not to extend implementation, the Committee Chair will advertise this action and set a filing window to give other agencies a chance to request an allotment of that spectrum.

Should system implementation not begin within two (2) years or if projected planned channel loading is not attained within four (4) years after granting of license, the channels will be returned for re-allotment to others. A one (1) year extension may be supported by the RPC, if it can be shown that circumstances are beyond the control of the applicant. The applicant will be responsible for contacting the FCC to request an extension. Applicants must be acting to the extent of their power to implement the project within their authority.

System implementation will be monitored by the RPC Technical subcommittee who will be responsible for determining the progress being made on the implementation of a system. Monitoring of systems implementation by the subcommittee will take place on one (1) year intervals. If progress is made and the system is ultimately implemented the system can be determined "complete". If progress is not made, the licensee will be advised in writing that they are in default of their plan and the Region 32 plan and the consequences of their lack of progress. The Implementation subcommittee will inform the RPC and PW frequency coordinator of the situation. The (the subcommittee name that handles this situation) subcommittee will continue to monitor the progress of any system determined in default and if progress is still not being made the subcommittee will inform the RPC and recommend informing the FCC of the lack of progress. The licensee in default can appeal this action or can allow the license to be withdrawn. If the authorized frequencies are withdrawn they will be returned to the frequency allotment pool for future use.

If our region IS affected by interference potential from existing television stations operating in the 700 MHz spectrum, then something on this order will be inserted into the following section of our 700 MHz Plan. An example is provided below:

TV station (name of TV station), located in (TV station location) utilizes analog TV channel (TV channel #). Channel (TV channel #) is adjacent to 700 MHz public safety allocations and the frequency sort in the (name of specific location of the Region) area of Region 32 will include channels that can co-exist with TV channel (TV channel #) and channels that cannot to prepare for implementation when the (name of TV station) has left the band. The Region 32 700/800 MHz Advisory Committee will utilize NCC Implementation Subcommittee documentation titled **Appendix X "DTV Transition**" that will provide the criteria which will be used, per FCC rules, to protect existing TV stations from land mobile use on 700 MHz public safety channels. All other areas in Region 32 (State of North Dakota are capable of immediately implementing systems using any 700 MHz public safety channels. With no restrictions in implementation due to incumbent co-channel broadcasters in the region, implementation of systems will adhere to guidelines in FCC rule 90.529 (b) and (c). An Agency may file a request with the Regional Chairperson for an extension of time to implement. The request should include all details describing why the agency has not implemented and a new implementation schedule. If necessary, the Regional Chairperson will call a special meeting to determine if the allotment should be extended or if the agency should reapply to the committee for another allotment.

8.5 Priority for Receiving Spectrum Allocations

Priority for channel allocations will be made on a first come first served basis. Cooperative multi-agency system implementations will be given priority over non-shared single agency systems.

When applying for the new 700 MHz channels, the RPC expects applicants to relinquish any amount of any currently used spectrum and make that spectrum available for use by other agencies in Region 32 upon beneficial use of an implemented 700 MHz radio system. This currently licensed spectrum may be in any public safety band.

Agencies with a primary voice communication system operating under a NPSPAC band 800 MHz license, which are requesting 700 MHz channels for system expansion, are not asked to relinquish this spectrum but will be asked to include this spectrum that is already licensed into the loading requirements for a radio system as defined in this plan. The reason for this requested inclusion is that most, if not all, radio equipment developed for the 700 MHz band is expected to be also capable of operation on any existing 800 MHz NPSPAC licensed systems already in use and will likely to be include in justification of the loading of NPSPAC channels. Without this inclusion, it would theoretically be possible for an agency to double its frequency spectrum allocations by applying for an equivalent number of 700 MHz channels, for each 800 MHz channel that it has already licensed and justified loading criteria for, and reuse the same mobile or portable users for both bands, to both planning committees, in Region 32. Although separated in FCC rules and regulations, Region 32 will work with NPSPAC planning committees to attempt to make the most efficient use of spectrum for Public Safety in Region 32.

Agencies are encouraged to relinquish frequencies that will no longer be used as soon as possible in accordance with FCC rules and regulations.

The number of channels an applicant should retain would be an amount required to provide minimum interoperable communications to surrounding jurisdictions. In order to promote the interests of agencies that will benefit from an applicant submitting a request for 700

MHz spectrum, it is requested that the applicant submit a list of all channels and licenses held on existing public safety channels, and those channels that will be expected to be unlicensed when full beneficial use of 700 MHz channels are realized. The Region 32 700/800 MHz Advisory Committee will only distribute this information, and not decide if it is sufficient or not. It must be stressed that the Region 32 700/800 MHz Advisory Committee supports and promotes multi-agency systems that allow for regional/wide area coverage within the region.

8.6 Channel Loading

The Region 32 700/800 MHz Advisory Committee recognizes the FCC's increased focus on spectral efficiency standards versus absolute loading of each 700 MHz frequency assignment. It is however, the goal of the 700/800 MHz Advisory Committee to encourage efficient utilization of each frequency channel irrespective of bandwidth and therefore encourages the following:

- Each applicant for a trunked system should design their system for a minimum of 70 mobile and portable radios for each 12.5 kHz voice channel that will be placed in service within five (5) years of the initial plan approval date.

- Single conventional channels should be designed for a minimum load of 70 radios per 12.5 kHz channel. Mobile, portable, data, and control stations will all be considered within this count.

Channel loading will eventually be required to change to 70 units per 6.25 kHz channel, when further narrowband technologies are available and when the FCC requires that 6.25 kHz is identified as a single voice channel (vs. 12.5 kHz at this time).

8.7 Wideband Data

At this time, wideband data can only be considered if a FCC waiver is obtained.

8.8 Dispute Resolution – Intra-Regional

In the event an agency disputes the implementation of this Plan or the Federal Communications Committee approval of this Plan or parts of this Plan, the agency must notify the Chair of the dispute in writing. This section does not apply to protests over new spectrum allocations (see Section "6.3"). The Chair will attempt to resolve the dispute on an informal basis. If a party to the dispute employs the Chair, then the Vice Chair will attempt resolution. In such cases, the Chair shall be deemed to have a conflict of interest and will be precluded from voting on such matters. If after 30 days the dispute is not resolved, the Chair (or Vice Chair) will appoint a Dispute Resolution Committee consisting of two members from the State of North Dakota governmental agencies and at least five members from different counties in Region 32. That committee will select a Chair to head the committee and a secretary to document the proceedings.

The Region 32 700/800 MHz Advisory Committee Chair (or Vice Chair) will represent the Region in presentations to the Dispute Resolution Committee. The Committee will hear input from the disputing agency, any effected agencies and the Region Chair. The Committee will then meet in executive session to prepare a recommendation to resolve the dispute. Should this recommendation not be acceptable to the disputing agency/agencies, the dispute and all written documentation from the dispute will be forwarded to the National Regional Planning Oversight Committee, a subcommittee of the National Public Safety

Telecommunications Committee (NPSTC) for review. As a last resort, the dispute will be forwarded to the Federal Communications Commission for final resolution.

9.0 Interoperability Channels

9.1 Introduction

The ability for agencies to effectively respond to mutual aid requests directly depends on their ability to communicate with each other. Region 32 is subject to many natural disasters and mutual aid is common among agencies. This Plan seeks to facilitate the communications necessary for effective mutual aid.

The State of North Dakota will administer the 700 MHz interoperability channels via the 700/800 MHz Advisory Committee under National Coordination Committee's (NCC) guidelines. The Region 32 700/800 MHz Advisory Committee will work with the North Dakota State Interoperability Executive Committee. The members of the Region 32 700/800 MHz Advisory Committee will represent Region 32. If at any time the 700/800 MHz Advisory Committee is unable to function in the role of administering the interoperability channels in the 700 MHz band, then SIEC will assume this role and notify the FCC in writing of the change in administrative duties.

9.2 Tactical Channels

Region 32 will not set aside additional channels for interoperability use within the region. It is anticipated the sixty-four FCC designated interoperability channels (6.25 KHz) will be sufficient to provide interoperability (voice and data) within Region 32.

All mobile and portable units operating under this Plan and utilizing 700 MHz channels must be programmed with the minimum number of channels called for either in NCC guidelines or as the 700/800 MHz Advisory Committee specifies. The channel display in these radios will be in accordance with the NCC guidelines that have common alphanumeric nomenclature to avoid any misinterpretation of use within Region 32. The North Dakota 700/800 MHz Advisory Committee is the final authority on the interpretation of the distribution of the 700 MHz interoperability channels.

9.3 Deployable Systems

This Plan strongly supports use of deployable systems, both conventional and trunked. Deployable systems are prepackaged systems that can deploy by ground or air to an incident to provide additional coverage and capacity on interoperability channels. This will minimize the expense of installing extensive fixed infrastructure and recognizes the difficulty of providing complete coverage of the region due to environmental constraints.

Agencies should have conventional deployable systems capable of being tuned to any of the interoperability tactical channels. Those agencies that are part of a multiagency trunked system and commonly provide mutual aid to each other are encouraged to have trunked deployable systems that operate on the tactical channels designated by the FCC for this use. The 700/800 MHz Advisory Committee with concurrence with the SIEC will develop the operational details for deploying these systems.

It is expected that the tactical channels set aside for trunked operation will be heavily used by deployable systems. Therefore, the tactical channels cannot be assigned to augment general use trunked systems.

9.4 Monitoring of Calling Channels

700 MHz licensees will be responsible for monitoring interoperable calling channels. The 700/800 MHz Advisory Committee will develop operational guidelines for this function. Appendix K will include NCC documents that display required Interoperability guidelines.

10.0 Applicant Requirements and Evaluation

10.1 Introduction

The applicant evaluation criteria established in the NCC process, and as further defined in this plan, will be followed for approval. All requests will be considered on a first come, first served basis. In cases, where specific frequency allotments are required by numerous applicants at the same time, the applicant evaluation matrix point system will be utilized to determine the successful applicant. In all cases, area of coverage, technical requirements, and channel loading criteria will be applied. Exceptions may apply upon unique circumstances, after review and approval by the RPC. Deviations from FCC rules are not to be approved unless a fully justified waiver request has been presented to the RPC. The Region 32 700/800 MHz Advisory Committee will evaluate and process applications within thirty (30) days after notified of receipt by CAPRAD.

The matrix has been prepared to enable consistent evaluation of plans and applications. Variations within the parameters of this plan and submitted applications and/or plans may require extensive evaluation. Therefore, it shall be responsibility of the RPC to evaluate each situation on its own merit.

Each applicant for a trunked system shall certify that a minimum of 70 field radios for each 12.5 kHz channel will be placed in service within five (5) years of the initial plan approval date. If that is not the case, then less than fully loaded channels shall be returned to the allotment pool and the licensee shall modify their license accordingly. Conventional channels shall be loaded to 70 mobile units per channel. Where an applicant does not load a channel to 70 radio/subscriber units, the channel will be available for assignment to other licensees. Mobile, portable and control stations will be considered as mobile units.

10.2 Application Requirements

Each application must contain the following:

- FCC ULS 601 Form(s),
- Explanation of the systems future growth for all agencies involved in the system, including how the system will be loaded and what equipment type and quantity is planned to be purchased to load the system,
- Explanation of the budget commitment for the proposed system,
- State of compliance the applicant's agency will conform with interoperability requirements of the Statewide Communications Interoperability Frequency Management Plan,
- Any documentation that identifies intended radio channels the agency/entity will be abandoning through the FCC licensing processes, after full beneficial system use of allocated 700 MHz channels, for informational purposes only, and the benefit of other Entities with Region 32.
- Documentation that will assist the evaluation of the application against the Point Matrix system identified in Section 10.3.

The application will be forwarded to the Applicant's designated coordinator for technical review and any appropriate information will be uploaded to CAPRAD. Upon approval by the coordinator the Applicant may submit to the FCC for licensure. Any conflicts encountered during the licensing process, after Regional approval, the application will be returned to the RPC for resolution with the applicant.

10.3 Evaluation Matrix Point System

Region 32 will use a point system to determine approval priority of competing applications within the region. The maximum total points that can be achieved are 800 points. The applications receiving the highest point total will receive approval for the channels. Seven categories will be evaluated.

Where applicable, such as in multiple disciplines shared systems, the points for all agencies utilizing the system are included in the total.

1. Service and Use (Maximum score 300 points)

Service	Points
Local	10
County	10
State	10
Federal	10

Use	Points
Criminal Justice/Law Enforcement/Crisis Mgmt	50
Fire/EMS	50
Special Emergency	40
Emergency Management	40
Forestry Conservation	30
Highway Maintenance	30
General Government	20

Maximum Total 300

Environmental protection will fall in the "Special Emergency" category and shall be considered for tasks that directly reduce contamination to the air, water or ground by chemicals or waste materials.

2. Interoperability Communications (Maximum score 100 points)

The application is scored on the degree of interoperability that is demonstrated, with a range of points from 0 to 100. This category will not rate the application on the inclusion of interoperability channels, but on its proposed actual ability to communicate with different levels of government and services during a time of emergency.

Each applicant is encouraged to have direct mobile-to-mobile communications among these radio type functions; local, state and federal in the criminal justice, fire/EMS, special emergency, emergency management, forestry, highway maintenance and general government. All applicants will start with 100 points and points will be deducted based upon

their lack of intersystem communications. No points will be deducted if a plan or system has not yet been developed within their areas of service.

Ten (10) points will be deducted for each radio service type function in which the applicant lacks intersystem communication, if direct mobile-to-mobile does not exist.

Five (5) points for each radio service that the applicant lacks direct mobile-to-mobile communications.

3. Loading (Maximum score 150 points)

Those applicants who have demonstrated that they are part of or developing cooperative, multi-agency, systems will be scored on a range from 0 to 150 points depending upon the extent of the cooperative system.

Mutli-agency trunked, fully loaded, system	101 – 150 points
Trunked system, fully loaded, single agency	76 – 100 points
Mobile data channel fully loaded/channel	76 – 100 points
Conventional system fully loaded/channel	0 – 75 points

Expansion of existing systems will be evaluated as to the aforementioned category they are in. Any system less than fully loaded will have its score multiplied by the proportion:

Fully loaded/channel is a 12.5 kHz channel with 70 radio units. Control channels shall be considered as data channels. Plans submitted to the RPC shall stipulate the number of voice communication channels and the number of data channel(s). These points will only be assigned to fully loaded systems that are planned and identified with the application package submittal.

4. Spectrum Efficiency (Maximum score 50 points)

The applicant will be scored on the degree of spectrum efficient technology that the system demonstrates. A trunked system will be considered a spectrum efficient technology as well as any technological systems feature that is designed to enhance the efficiency of the system and improve the efficient use of spectrum.

Spectrum efficiency points

Trunked or equally high efficient technology	50 points
Conventional system using data	50 points
Technologies that increases system throughput	50 points

5. System Implementation Factors (Maximum score 100 points)

This category scores the applicant on two factors, budgetary commitment and plan completeness. The degree of budgetary commitment is scored on a range from 0 to 50 points based on the RPC's evaluation of commitment demonstrated through documentation by the applicant and its funding source entity. A high degree of funding commitment will receive a higher score. Applicants will also be scored on the degree of plan completeness on a range from 0 to 50 points. Applicants must submit a timetable for the implementation of the system. Applicants should be aware of the requirements outlined in "Slow Growth Plan" portion of this plan and the FCC rules.

Multi phase project with funds committed to all phases 50 points
Multi phase project plan completed for all phases 50 points

Applicants with less than complete funding commitment and/or incomplete plans will have their point score reduced accordingly. Resolutions, legislation, or other such documentation from governing entities shall be submitted with applications to support financial commitment.

6. System Density (Maximum score 100 points)

Each applicant's System will be scored on the level of geographic efficiency for requisite communications coverage, for the applicant's jurisdictional area served or regional area served under agreement with other Agencies and/or defined communication requirements. Scoring will be based upon the defined radio coverage area of the application, and the Entity's jurisdictional area or required communication support areas. Region 3 recognizes that each Entity may not be required (by System or network users) to provide radio System communication support for all jurisdictional boundaries or areas that are supported by that Entity. This evaluation is to only weigh the efficiency of the System being applied for, against the required areas for communication support based on System user requirements or other Entity Systems licensed or applied for. Scores are based on the ratio multiplied by 100 with the maximum not to exceed 100 points.

Percentage of System operational area for applicant's jurisdictional area of responsibility for communications support x 100 = _____

10.4 Application Processing

All applications will be processed in the most expeditious manner possible by the RPC. After Region 32 approval, the applications will be sent to the coordinator requested by the applicant. All documentation required by the designated coordinator selected in this process will be available through the CAPRAD system. Subsequent to coordination approval the FCC will grant the license(s) to the applicant.

11.0 Process for Handling Unformed Regions

The Region 32 700/800 MHz Advisory Committee recommends that all Regions use the following pre-planning methodology to facilitate coordination with adjacent Regions. This procedure will provide a spectrum allotment for adjacent Regions that do not immediately form a Committee.

Counties or other geographic subdivisions within 70 miles of the Regional border need to share spectrum with the adjacent Region(s). The sharing indicated is inherent in the NPSTC Packing Program, as it views all counties nationwide as separate entities while ignoring state borders. With all criteria being equal, this ensures all counties are provided sufficient spectrum in accordance with their surrounding counties. The appropriate ratio of channels shall be allotted to counties in adjacent regions based upon each county's population. A 25 kHz building block will be used to distribute spectrum between the regions. A description of the demographics of the affected border areas shall be included.

The requirements for adjacent region concurrence will require a waiver if the adjacent region has not yet formed. The Region filing the Plan must use the pre-planning procedure outlined above. The waiver request must be filed concurrently with the Plan and contained in the cover letter.

12.0 Future Planning

12.1 Database Maintenance

The CAPRAD pre-coordination database has developed channel allotments in each county area within Region 32 using criteria such as current population, 2010 Census data, height above average terrain (HAAT) and public safety use curves generated by the Public Safety Wireless Advisory Committee (PSWAC) to provide spectrally efficient frequency allotments. Region 32 will continue to use the CAPRAD pre-coordination database for other 700 MHz spectrum as it becomes available.

12.2 Inter-Regional Dispute Resolution Process

In the event that a dispute arises between Region 32 and an adjacent Region or Regions, regarding spectrum allocations or implementation, which cannot be resolved within 60 days, the parties to the dispute will request a hearing by the National Regional Planning Oversight Committee.

All three adjacent Regions have signed the Region 32 dispute resolution. See Appendix J for details and Inter-Regional Dispute Resolution Agreements signed by the adjacent Regions.

13.0 Certification

I hereby certify that all planning committee meetings, including subcommittee or executive committee meetings were open to the public. A summary of the deliberations of the Committee pursuant to adopting this Plan can be found in Appendix F.

Chairperson Region 32

Date: 8-28-2015

14.0 Appendix A-By-laws

BYLAWS OF REGION 32

ARTICLE 1

NAME & PURPOSE

Name and purpose. The name of this Region shall be Region 32 - North Dakota. In North Dakota there has been a 700/800 MHz Advisory Committee created to oversee interoperability channels. The Regional Planning Committee will be known as the 700/800 MHz Advisory Committee and serve in conjunction with the SIEC. The SIEC intends to include at least one member of the Region 32 RPC on its committee. Its primary purpose is to foster cooperation, planning, development of regional plans and the implementation of these plans in the 700 MHz Public Safety Band.

ARTICLE II

MEMBERS

For purposes of this Article, the term "member," unless otherwise specified, refers to both voting and non-voting members.

2.1 **Number, Election and Qualification**. The Regional Committee shall have two classes of members, "voting members" and "non-voting members." New members may be added at annual, special, or regular meetings.

Voting Members. Voting members shall consist of one representative from public safety disciplines such as state agency, division, or responder group engaged in public safety. A single agency shall be allowed no more than one vote for each distinct eligibility category of homeland security, law enforcement, public works, emergency management, fire, EMS, and 911 within the agency's organization or political jurisdiction. In voting on any issue the individual must identify himself/herself and the agency and eligibility category that he or she represents.

Non-Voting Members. Non-voting members are all others interested in furthering the goals of public safety communications. Non-Voting Commercial members are representatives from any company that wants to further the goals of public safety communications. Non-voting commercial members are able to attend meetings and act as advisers as necessary, but will not be authorized to vote.

2.2 **Tenure**. In general, each member shall hold MEMBERSHIP from the date of acceptance until resignation or removal.

2.3 **Powers and Rights**. In addition to such powers and rights as are vested in them by law, or these bylaws, the members shall have such other powers and rights as the membership may determine.

2.4 **Suspension and Removal**. A representative may be suspended or removed with cause by vote of a majority of members after reasonable notice and opportunity to be heard.

2.5 **Resignation**. A representative may resign by delivering written resignation to the chairperson, vice-chairperson, treasurer or secretary of the Regional Committee or to a meeting of the members. A resigning member is eligible for reinstatement to the Regional Planning Committee after a period of six months has lapsed, beginning on the first day of resignation.

2.6 **Meetings**. A minimum of one meeting per year will be held of the full committee. This will be announced with the procedures set out in the North Dakota Century Code § 44-04 by the Committee Chair. Committee meetings will not be held on holidays or weekend days, unless called by the Region 32 Chairperson. At any time and when deemed necessary by the Chairperson, an additional meeting may be called. Video and/or Audio Teleconferencing may be conducted at meetings to include as many people as possible in the 700 MHz allocation process.

2.7 **Special Meetings**. Special meetings of the members may be held at any time and at any place within the Regional Committee area. Special meetings of the members may be called by the chairperson or by the vice-chairperson, or in case of death, absence, incapacity, by any other officer or, upon written application of two or more members.

2.8 Call and Notice.

A. Reasonable notice of the time and place of special meetings of the members shall be given to each member in accordance with North Dakota Century Code § 44-04.

B. Reasonable and sufficient notice. Except as otherwise expressly provided, it shall be reasonable and sufficient notice to a member to send notice by mail at least five days or by e-mail/facsimile at least three days before the meeting, addressed to such member at his or her usual or last known business address, or, to give notice to such member in person or by telephone at least three days before the meeting.

2.9 **Quorum**. At any meeting of the members, a majority of the officers and members shall constitute a quorum. Any meeting may be adjourned to such date or dates not more than ninety days after the first session of the meeting by a majority of the votes cast upon the question, whether or not a quorum is present, and the meeting may be held as adjourned without further notice.

2.10 **Action by Vote**. Each voting member as set out in 2.1 Voting Members shall have one vote; non-voting members have no right to vote. When a quorum is present at any meeting, a majority of the votes properly cast by voting members present shall decide any question, including election to any office, unless otherwise provided by law or these bylaws. Items not specifically listed on the agenda, may be acted on, but will not become final until minutes are published, distributed, and approved at the next meeting of the Committee.

2.11 **Proxies**. Voting members may vote either in person or by written proxy before the meeting named therein, which proxies shall be filed before being noted with the secretary or other person responsible for recording the proceedings of the meeting. A member present via teleconference (audio or video) shall have voting status parallel to a member present at the meeting. If the facility is unable to accommodate teleconferencing (audio or video), or for any other reason teleconferencing cannot be accommodated in the meeting place, it is the responsibility of the member to attend the meeting in person or to vote by written proxy to have full voting rights. Unless otherwise specifically limited by their terms, such proxies

shall entitle the holders thereof to vote at any adjournment of the meeting for which the proxy exists and the proxy shall terminate after the final adjournment of such meeting.

2.12 **Voting on One's Own Application.** At no time can a voting member vote on his/her application.

2.13 **Special Interest Voting**. A voting member cannot have a commercial interest in any of his/her Region and/or adjacent Region's application(s) on which he/she is reviewing, approving and/or voting

ARTICLE III

OFFICERS AND AGENTS

3.1 **Number and qualification**. The officers of the Regional Committee shall be a chairperson, and vice-chairperson. Any other officers such secretary/treasurer will be added as the voting members may determine. The officers must be voting members of the Regional Committee.

3.2 **Appointment**. The Director of State Radio will serve as the Chair of the 700/800 MHz Advisory Committee. The Chair shall appoint a staff member with frequency management duties to serve as the Vice-Chairperson or call for an election from the members.

3.3 **Election**. The officers shall be elected by the voting members at a meeting of the members.

3.4 **Tenure**. The chairperson shall hold office until reassigned by the Department of Emergency Services (DES) director. The officers shall each hold office until reassigned by the committee with concurrence of the SIEC or until their successor, if any, is chosen, or in each case until he or she sooner dies, resigns, is removed or becomes disqualified.

3.5 **Chairperson and Vice Chairperson**. The chairperson shall be the chief executive officer of the Regional Committee and, subject to the control of the Director of DES, shall have general charge and supervision of the affairs of the Regional Committee. The chairperson shall preside at all meetings of the Regional Committee.

The Vice Chairperson, if any, shall have such duties and powers, as the Chairperson or voting members shall determine. The vice-chairperson shall have and may exercise all the powers and duties of the chairperson during the absence of the chairperson or in the event of his or her inability to act.

3.6 **Record Keeping**. The vice-chairperson or secretary/ treasurer shall record and maintain records of all proceedings of the members in a file or series of files kept for that purpose, which file or files shall be kept within the Region and shall be open at all reasonable times to the inspection of any member. Such file or files shall also contain records of all meetings and the original, or attested copies, of bylaws and names of all members and the address (including e-mail address, if available) of each. The Chairperson shall determine if needed who shall be the chief financial officer and the chief accounting officer of the Regional Committee. The position shall be in charge of its financial affairs, funds, and valuable papers and shall keep full and accurate records

thereof. If the record keeper is absent from any meeting of members, a member shall be chosen at the meeting to exercise the duties of the record keeping of the meeting.

3.7 **Suspension or Removal**. The chairperson may be suspended or removed by the Director of DES. The chairperson may suspend or remove the vice-chairperson. Any other officer may be suspended with cause by vote of a majority of the voting members.

3.8 **Resignation**. An officer may resign by delivering his or her written resignation to the chairperson or vice-chairperson Regional Committee. Such resignation shall be effective upon receipt (unless specified to be effective at some other time), and acceptance thereof shall not be necessary to make it effective unless it so states.

3.9 **Vacancies**. If the any office other then chairperson or vice-chairperson becomes vacant, the voting members may elect a successor. Each such successor shall hold office for the remainder terms or in each case until he or she sooner dies, resigns, is removed or become disqualified.

ARTICLE IV

AMENDMENTS

These bylaws may be altered, amended or repealed in the sections that have not been set by the committee and approved by the Director of DES. The voting members may by a two-thirds vote, alter, amend, or repeal any sections of the bylaws adopted by the Regional Committee members or otherwise adopt, alter, amend or repeal any provision which FCC regulation or these bylaws requires action by the voting members. Members shall be given prior notice to any proposed change in the bylaws, and the changes shall be identified on the agenda.

ARTICLE V

DISSOLUTION

This Regional Committee may be dissolved by the consent of two-thirds of the representatives in good standing at a SIEC meeting called for such purpose on the agenda. The FCC shall be notified.

ARTICLE VI

RULES OF PROCEDURES

The Conduct of Regional Meetings including without limitation, debate and voting, shall be governed by Robert's Rules of Order, newly revised 1990 edition, ninth edition, Sarah Corbin Robert, Henry M. Robert III, and William J. Evans.

Procedures for application process are stated in Section 10 Applicant Requirements and Evaluation of the Region 32 700 MHz Plan.

15.0 Appendix B - Committee Membership List

Region 32 Planning Committee – 700/800 MHz Advisory Committee

Michael Lynk
Div. of State Radio Communications
Box 5511
Bismarck, ND 58506-5511
mlynk@nd.gov
701-328-8100

Janell Quinlan
Div. of State Radio Communications
Box 5511
Bismarck, ND 58506-5511
jquinlan@nd.gov
701-328-8100

Ron Gronneberg
City of Fargo - City Hall
200 N 3rd St
Fargo, ND 58102
rgronneberg@cityoffargo.com
701-241-1312

Karen Kempert
Cavalier County Emergency Management/911
901 Third St, Suite 6
Langdon, ND 58249
kkempert@nd.gov
701-256-3911

Bob Steckler
ND Department of Transportation - Telecommunications
216 Airport Road
Bismarck, ND 58504
rsteckler@nd.gov
701-328-6935

Bob Timian
ND Game & Fish
100 N. Bismarck Expressway
Bismarck, North Dakota 58501-5095
rtimian@nd.gov
701-328-6324

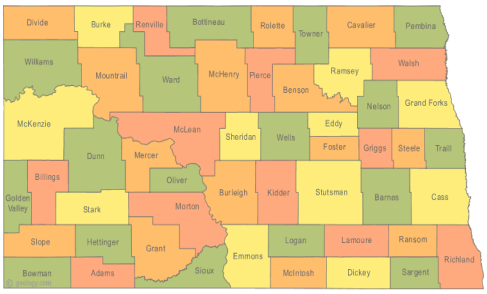
Brian Zastoupil
Red River Regional Dispatch Center
300 NP Avenue Suite 206
Fargo, ND 58102
bzastoupil@rrrdc.com
701-451-7683

16.0 Appendix C – List of Counties/Cities in the Region

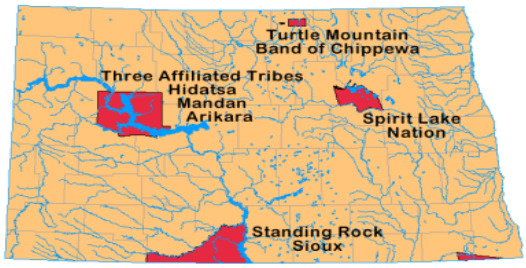
Information for this section may be taken from your Region's 800 MHz Plan and be inserted in this 700 MHz Plan, as appropriate

North Dakota is geographically organized in 53 counties, 357 incorporated cities, and 4 Indian Tribes as outlined in the maps and tables below:

North Dakota Counties Map



North Dakota Tribal Governments Map



County	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction
Adams County	Bucyrus	Haynes	Hettinger	Reeder		
Barnes County	Dazey	Fingal	Kathryn	Leal	Litchville	Nome
	Oriska	Pillsbury	Rogers	Sanborn	Sibley	Tower City **
	Valley City	Wimbledon				
Benson County	Brinsmade	Esmond	Knox	Leeds	Maddock	
	Minnewaukan	Oberon	Warwick	York		
Billings County	Medora					
Bottineau County	Antler	Bottineau	Gardena	Kramer	Landa	Lansford
	Maxbass	Newburg	Overly	Souris	Westhope	Willow City
Bowman County	Bowman	Gascoyne	Rhame	Scranton		
Burke County	Bowbells	Columbus	Flaxton	Larson	Lignite	
	Portal	Powers Lake				
Burleigh County	Bismarck	Lincoln	Regan	Wilton **	Wing	
Cass County	Alice	Amenia	Argusville	Arthur	Ayr	
	Briarwood	Buffalo	Casselton	Davenport	Enderlin **	
	Fargo	Frontier	Gardner	Grandin **	Harwood	
	Horace	Hunter	Kindred	Leonard	Mapleton	North River
	Oxbow	Page	Prairie Rose	Reilie's Acres	Tower City **	West Fargo
Cavalier County	Alsen	Calio	Calvin	Hannah	Langdon	Loma
	Milton	Munich	Nekoma	Osnabrock	Sarles **	Wales
Dickey County	Ellendale	Forbes	Fullerton	Ludden	Monango	Oakes
Divide County	Ambrose	Crosby	Fortuna	Noonan		
Dunn County	Dodge	Dunn Center	Halliday	Killdeer		
Eddy County	New Rockford	Sheyenne				
Emmons County	Braddock	Hague	Hazelton	Linton	Strasburg	
Foster County	Carrington	Glenfield	Grace City	McHenry		
Golden Valley County	Beach	Golva	Sentinel Butte			

County	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction
Grand Forks County	Emerado	Gilby	Grand Forks	Inkster	Larimore	
	Manvel	Niagara	Northwood	Reynolds **	Thompson	
Grant County	Carson	Elgin	Leith	New Leipzig		
Griggs County	Binford	Cooperstown	Hannaford			
Hettinger County	Mott	New England	Regent			
Kidder County	Dawson	Pettibone	Robinson	Steele	Tappen	Tuttle
LaMoure County	Berlin	Dickey	Edgeley	Jud	Kulm	
	LaMoure	Marion	Verona			
Logan County	Fredonia	Gackle	Lehr **	Napoleon		
McHenry County	Anamoose	Balfour	Bantry	Bergen	Deering	
	Drake	Granville	Karlsruhe	Kief	Towner	
	Upham	Velva	Voltaire			
McIntosh County	Ashley	Lehr **	Venturia	Wishek	Zeeland	
McKenzie County	Alexander	Arnegard	Watford City			
McLean County	Benedict	Butte	Coleharbor	Garrison	Max	
	Mercer	Riverdale	Ruso	Turtle Lake	Underwood	
	Washburn	Wilton **				
Mercer County	Beulah	Golden Valley	Hazen	Pick City	Stanton	Zap
Morton County	Almont	Flasher	Glen Ullin	Hebron	Mandan	
	New Salem					
Mountrail County	New Town	Palermo	Parshall	Plaza	Ross	
	Stanley	White Earth				
Nelson County	Aneta	Lakota	McVille	Michigan	Pekin	
	Petersburg	Tolna				
Oliver County	Center					

County	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction
Pembina County	Bathgate	Cavalier	Crystal	Drayton	Hamilton	
	Hensel	Mountain	Neche	Pembina	Saint Thomas	Walhalla
Pierce County	Balta	Rugby	Wolford			
Ramsey County	Brocket	Churchs Ferry	Crary	Devils Lake	Edmore	
	Hampden	Lawton	Starkweather			
Ransom County	Elliott	Enderlin **	Fort Ransom	Lisbon	Sheldon	
Renville County	Glenburn	Grano	Loraine	Mohall	Sherwood	Tolley
Richland County	Abercrombie	Barney	Christine	Colfax	Dwight	
	Fairmount	Great Bend	Hankinson	Lidgerwood	Mantador	
	Mooreton	Wahpeton	Walcott	Wyndmere		
Rolette County	Dunseith	Mylo	Rolette	Rolla	Saint John	
Sargent County	Cayuga	Cogswell	Forman	Gwinner	Havana	
	Milnor	Rutland				
Sheridan County	Goodrich	Martin	McClusky			
Sioux County	Fort Yates	Selfridge	Solen			
Slope County	Amidon	Marmarth				
Stark County	Belfield	Dickinson	Gladstone	Richardton	South Heart	Taylor
Steele County	Finley	Hope	Luverne	Sharon		
Stutsman County	Buchanan	Cleveland	Courtenay	Jamestown	Kensal	
	Medina	Montpelier	Pingree	Spiritwood Lake	Streeter	Woodworth
Towner County	Bisbee	Cando	Egeland	Hansboro	Maza	
	Perth	Rock Lake	Sarles **			
Traill County	Buxton	Clifford	Galesburg	Grandin **	Hatton	
	Hillsboro	Mayville	Portland	Reynolds **		
Walsh County	Adams	Ardoch	Conway	Edinburg	Fairdale	
	Fordville	Forest River	Grafton	Hoople	Lankin	
	Minto	Park River	Pisek			

County	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction	Jurisdiction
Ward County	Berthold	Burlington	Carpio	Des Lacs	Donnybrook	Douglas
	Kenmare	Makoti	Minot	Ryder	Sawyer	Surrey
Wells County	Bowdon	Cathay	Fessenden	Hamberg	Harvey	
	Hurdsfield	Sykeston				
Williams County	Alamo	Epping	Grenora	Ray	Springbrook	
	Tioga	Wildrose	Williston			
Note **	Seven (7) incorporated Cities noted with ** indicate they are geographically located within two counties.					

Tribes	Jurisdictions
Spirit Lake Sioux Tribe	Located in Eddy, Ramsey and Benson Counties
Standing Rock Sioux Tribe	Located in Sioux County
Three Affiliated Tribes	Located in Dunn, McKenzie, McLean, Mercer, Mountrail, and Ward Counties
Turtle Mountain Band of Chippewa	Located in Rolette County

17.0 Appendix D - Cover Letter to Adjacent Regional Chairs

MONTANA REGION 25 700 MHZ
INTERREGIONAL CONCURRENCE NOTIFICATION
Michael Lynk
Region 32 Chairperson
Director of Division of State radio Communications
ND Department of Emergency Services
P.O. Box 5511
Bismarck, ND 58506-5511

Dear Chairman Lynk,
On September 18, 2015 Regional Planning Committee (RPC) 32 (North Dakota) electronically submitted its 700 MHz Regional plan for approval to the Region 25 700 MHz Regional Planning Committee.

RPC Region 25 has completed a thorough review of the proposed Plan and hereby provides this correspondence to serve as the official, written concurrence of the proposed Region 32 700 MHz Plan.

Please call or email me if you require additional information.

Dale Osbome
Region 25 Montana
700 MHZ Chairman

State of South Dakota
State Radio
Bureau of Information & Telecommunications

09/24/2015

Michael Lynk,
Region 32 Chairperson
Director of Division of State Radio Communications
ND Department of Emergency Services

Dear Chairperson Lynk:

Region 38 is providing this letter to confirm our concurrence with the Region 32 700/800 MHz Advisory Committee's plan for the 700 MHz public safety band, which was submitted to us for review. Any changes in the future that affect Region 38 will be resubmitted for further review at that time.

Sincerely,

Todd Dravland
Region 38 Chairperson
1302 E. Hwy. 14, Suite 8
Pierre, SD 57501

700 MHz Region 22 Planning Committee

October 2nd, 2015

Michael Lynk,
Region 32 Chairperson
Director of Division of State Radio Communications
ND Department of Emergency Services

Dear Chairperson Lynk:

Region 22 is providing this letter to confirm our concurrence with the Region 32 700/800 MHz Advisory Committee's plan for the 700 MHz public safety band, which was submitted to us for review. Any changes in the future that affect Region 22 will need to be resubmitted for further review at that time.

Sincerely,

Jim Mohn
Region 22 Chairperson
MnDOT Office of Statewide Radio Communicatons
1500 W. County Road B2
Roseville, MN 55113
651-234-7969
Jim.mohn@state.mn.us

18.0 Appendix E – 700/800 MHz Advisory Committee Meeting Minutes

700 MHz Convening Meeting Minutes

The 700 MHz Convening Meeting was held Thursday, December 17, 2009 at 1:30 p.m. CST in Room 393 of Raymond J. Bohn Armory in Bismarck, ND. The meeting was called to order by convener, Rick Hessinger. He conducted introduction of the attendees. The meeting was then turn over to Mike Lynk, Director of State Radio Communication and the Vice Chair of the State Interoperable Executive Committee (SIEC). Mike explained the purpose and organization of the SIEC. He described how the 700 MHz Planning Working Committee fit into the structure of the SIEC and the duties of the 700 MHz committee. Then the meeting was opened up to accept volunteer to serve on the committee. Those volunteer are:

Name	Agency	Position
Ron Gronneberg	City of Fargo	CIO
Karen Kempert	Cavalier Co.	EM/911
Bob Steckler	NDDOT	Telecommunications Manager
Bob Timian	ND Game & Fish	Chief Warden
Brian Zastoupil	Red River Reg. Dispatch Center	Radio Systems Coordinator

The committee will report to Mike Lynk. Janell Quinlan, State Radio Frequency Coordinator will also work with the committee. Rick Hessinger will also serve as advisor as he is chair of the 800 MHz committee.

The meeting was adjorned at 1:50 pm CST.
FCC Posting
Released: 10/16/2009. PUBLIC SAFETY AND HOMELAND SECURITY BUREAU ANNOUNCES REGION 32 (NORTH DAKOTA) 700 MHZ REGIONAL PLANNING COMMITTEE INITIAL MEETING. (DA No. 09-2225). PSHSB
http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2225A1.doc
<https://webmail.fcc.gov/exchweb/bin/redir.asp?URL=http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2225A1.doc>

http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2225A1.pdf
<https://webmail.fcc.gov/exchweb/bin/redir.asp?URL=http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2225A1.pdf>
http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2225A1.txt
<https://webmail.fcc.gov/exchweb/bin/redir.asp?URL=http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2225A1.txt>

Jeannie A. Benfaida
Program Analyst, Policy Division
Public Safety and Homeland Security Bureau Federal Communications Commission

202.418.2313
202.503.0411 BB
Jeannie.Benfaida@fcc.gov <mailto:Jeannie.Benfaida@fcc.gov>

700 MHz Plan Public Notice

REGION 32 700 MHz REGIONAL PUBLIC SAFETY PLANNING MEETING

The North Dakota State Interoperable Executive Committee invites all entities that have an interest in participating in a Regional Planning Committee to develop a 700 MHz Plan for Region 32 (State of North Dakota) to a convening meeting. The meeting will take place on Thursday, December 17, 2009 in Bismarck, ND at the Raymond J Bohn Armory located at 4200 E Divide Ave in Rooms 386 A&B starting at 1:30 pm CST. This meeting is to organize a working group to develop this plan to be submitted to the Federal Communication Commission.

All eligible public safety providers in Region 32 whose sole or principal purpose is to protect safety, health, or property may utilize these frequencies. It is essential that not only public safety, but all government, Native American Tribal, and non-governmental organizations eligible under Section 90.523 of the Commission's Rules be represented in order to ensure that each agency's future spectrum needs are considered in the allocation process. Administrators who are not oriented in the communications field should delegate someone with this knowledge to attend, participate and represent your agency's needs.

All interested parties wishing to participate in the planning for the use of the new public safety spectrum in the 700 MHz band within Region 32 should plan to attend. Region 32 welcomes all interested parties to attend, participate and volunteer for committee assignments.

For further information please contact:

Rick Hessinger
Convener for the Region 32 700 MHz Planning Committee
1001 Apple Creek Road
Bismarck, ND 58504
PH: 701-255-2566
Email: Rhessing@q.com

Mike Lynk
Director of ND Division of State Radio Communications
Vice-Chairperson for State Interoperability Executive Committee
Box 5511
Bismarck, ND 58506-5511
PH: 701-328-8100
Email: mlynk@nd.gov

MEDIA

The 700 MHz Plan convening notice was sent to this list of media in North Dakota.

Agweek
AP-Bismarck
Ashley Tribune
Beach-Golden Valley News/Billings County Pioneer
Belcourt-Turtle Mountain Times
Benson County Farmers Press
Beulah Beacon
BHG, Inc.
Bismarck Tribune
Bottineau-Courant
Bowbells-Burke County Tribune
Bowman-Bowman County Pioneer
Carrington-Foster County Independent
Carson Press & Grant County News
Casselton-Cass County Reporter
Cavalier Chronicle
Center Republican
Crosby Journal
Devils Lake Journal
Drayton-Valley News & Views
Edgeley Mail
Ellendale-Dickey County Leader
Enderlin Independent
Fargo Forum
Gackle-Tri-County News
Glen Ullin Times
Grafton-Walsh County Record
Grand Forks Herald
Hankinson-Richland County News-Monitor
Harvey-Herald Press
Hebron Herald
Hettinger-Adams County Record
Hillsboro Banner
Journal Publishing Inc
Kenmare News
Killdeer-Dunn County Herald
Kulm Messenger
Lakota American
LaMoure Chronicle
Langdon-Cavalier County Republican
Larimore Leader-Tribune
Linton-Emmons County Record
Lisbon-Ransom County Gazette
Litchville Bulletin Mandan News
Mandan News
Mayville-Traill County Tribune
McClusky Gazette
Milnor-The Teller
Minnewaukan-Benson County Farmers Press

Mohall-Renville County Farmer
Napoleon Homestead
Ness Press
New England Herald
New Rockford Transcript
New Salem Journal
Northwood-The Gleaner
Oakes-The Oakes Times
Park River-Walsh County Press
Pembina New Era
Rolla-Turtle Mountain Star
Rugby-Pierce County Tribune
Stanley-Mountrail County Promoter
Steele County Press
Tioga Tribune
Towner-Mouse River Journal
Turtle Lake-McLean County Journal
Underwood News
Velva Area Voice
Watford City-McKenzie County Farmer
West Fargo Pioneer
Westhope Standard
Wishek Star
ABC News
American Ag Network
Clear Channel
ForumComm
Northern Ag Network
KBMW-AM
KBMR-AM
KCNN-AM
KDLR-AM-KDVL-FM-KQZZ-FM
KFBN-FM
KFGO-AM
KFNW-FM
KFYR-AM
KFYR-TV
KKXL~KQHT~KKXL
KLTA - FM
KNDR-FM
KNDX/KBMY-TV
KNOX-AM
KVLY-TV
KVOX-FM
KVRR-TV~KJRR -TV~KBRR-TV~KNRR-TV
KX TV
KXJB
KXMB-TV
MINNESOTA PUBLIC RADIO
NDPR
WDAY-TV
WDAZ-TV
XM Satellite Radio

700 MHz Planning Meeting Minutes
Tuesday, March 31, 2010 at 2:00 pm

The 700 MHz Advisory Committee meet on. Those attending at the TAG Conference Room in Building 30 at Fraine Barracks were Mike Lynk, Bob Steckler, Bob Timian and Janell Quinlan. Participating by conference call was Karen Kempert at her office in Langdon and Ron Gronneberg, Rick Hessinger and Brian Zastoupil at Brian's office in Fargo.

Introductions
Introductions were made so everyone knew who was in attendance at the different locations. The minutes of the Convening Meeting were read Karen Kempert made a motion to approve which was seconded by Bob Timian. The motion carried.

NPRC Meeting
Janell gave a report on the National Regional Planning Council (NRPC) meeting that Rick Hessinger and she had attended in Tampa, FL on March 25-26, 2010. This council deals with issues pertaining to 700 MHz and 800 MHz.

Some of the topics covered were an informal inquiry as to how many region planning committees were part of the State Interoperability Executive Committee or their own entity and who had the final approval of the 700 MHz and 800 MHz plans. It was advised that regions look at when the build out on their 700 licenses are due and it there is a need to apply for an extension otherwise the frequencies will revert back to a pool. Some best practices were discussed such as using the CAPRAD (Computer Assisted Pre-coordination Resource and Database System) for having applications for 700 MHz frequency approval done in it; using a tape recording of meeting to assist in any application disputes, having same people on both 700 and 800 committees and having both meetings on the same day. Also CAPRAD was looked at as to how it can be used by committees and it was recommended that it be used for 800 as committees update those plans. It was also encouraged that committee members get register at www.caprad.org so they could have access to their region's information. Janell will send out an email to members with instructions on how to get registered.

Jeannie Benfaida from FCC- Policy Division-PSHSB gave a report on the current status of different issues. The rebanding of 800 MHz in Waves 1, 2 and 3 has been completed. Currently FCC is working on Waves 4 and Region 19. ND was in Wave 2 which was completed last spring. Thirty five 700 MHz plans have been submitted and 32 of those have been approved. She also explained the plan amendment process that can be used for either 700 or 800. She also gave us contacts within FCC for planning issues.

Another area that was discussed was 4.9 GHz. There has been some discussion that maybe NRPC should also help manage 4.9 GHz. Some committees have already taken this on in their regions. Other regions have concerns about what kind disorder there may be because this has been an uncoordinated area. In ND there have been six licenses issued.

700 MHz Plan Prototype
Janell gave an overview of the 700 MHz Plan prototype of what had been put into and areas that we need to take a closer look that require decisions by the committee. Brian recommended keeping the Notification Process as simple as possible. Bob Timian asked whether this plan would address both voice and data. The consensus of the group was that it would address both areas of usage. Mike reported on what frequencies were on the State

license. It was decided to leave the channel allotments as they were done by FCC until such time that applications may require looking at any amendments. It was decided that comments on Section 5 Notification and Section 6 Regional Plan Administration would be submitted to Janell by April 23 for consolidation. These will then be reviewed and discussed at the next meeting on Tuesday, May 4 at 2:00 pm.

800 MHz Plan
Rick Hessinger the current chair of the 800 MHz Planning Committee spoke on combining into one committee as so many members of the committee are no longer available and it hasn't met since the early 90's. Bob Timian made a motion to recommend to the SIEC to combine the 700 MHz and 800 MHz Advisory Committees to develop and amend the plans. Ron seconded it and the motion carried. Janell will send a copy of the 800 MHz plan to members for review before the next meeting.

Mike reported that the Frequency Management Plan and Signal Operation Instructions would be sent out for public comment on Wednesday and then the SIEC would be meeting at the end of April to discuss them. He would also add to that agenda the recommendation of this committee for joining 700 and 800 committees.

Next Meeting
Next meeting held on Tuesday, May 4 at 2:00 pm. Janell will determine a conference room and let committee know.

Adjournment
Ron made a motion to adjourn the meeting and Bob Timian seconded.

700 MHz Planning Meeting Minutes
Tuesday, May 4, 2010 at 2:00 pm

Introductions
The 700 MHz Advisory Committee meet on Tuesday, May 4 at 2:00 pm. Those attending at the TAG Conference Room in Building 30 at Fraine Barracks were Mike Lynk, Bob Steckler, Bob Timian, Rick Hessinger and Janell Quinlan. Participating by conference call was Karen Kempert at her office in Langdon. Ron Gronneberg and Brian Zastoupil were absent.

Report on SIEC Meeting
Mike reported that the SIEC had approved the Frequency Management Plan and Signal Operating Instructions. The SIEC also approved of consolidating the 700 MHz and 800 MHz Plans under the 700 MHz committee. It was also decided that the committee would review applications and make recommendations to the SIEC for final approval.

Review of the 700 MHz Plan Draft Comments on Section 5 Notification and Section 6 Regional Plan Administration
It was decided that notification would follow the state law on notice of public meetings. At this time their would be only one committee with the ability to form additional workgroups if the work load required it as we get further in the process of implementing a 700 MHz or 800 MHz system in the state. It was decided to use the CAPRAD system for applications.

Determine Next Sessions to Review in the Plan:
Comments on Section 7 System Design/Efficiency Requirements and Section 8 Allocation of Narrowband "General Use" Spectrum will need to be sent to Janell by Wednesday, May 26.

Comments

Bob T. made a motion that the minutes from the March 30, 2010 meeting be approved and Bob S. seconded.

Most of the members had still not registered on the CAPRAD system so Janell will send out the instructions again.

Rick Hessinger shared concerns on 4.9 GHz spectrum and proposed that the state should start thinking about a way of tracking that information as other area of the country are now running into issues with that spectrum. Bob S. recommended that it be brought to the SIEC's attention which Mike will do for the next SIEC meeting.

Future Meeting Sessions
Next meeting held on Wednesday, June 2 at 9:00 am. Janell will determine a conference room and let the committee know.

Adjournment
Mike made a motion to adjourn the meeting and Rick seconded.

700 MHz Planning Meeting Minutes
Wednesday, June 2, 2010 at 9:00 am

Introductions
The 700/800 MHz Advisory Committee met on Wednesday, June 2, 2010 at 9:00 am. Those attending at the TAG Conference Room in Building 30 at Fraine Barracks were Mike Lynk, Karen Kempert, Rick Hessinger and Janell Quinlan. Participating by conference call was Ron Gronneberg and Brian Zastoupil. Bob Steckler and Bob Timian were absent.

Minutes from May 4, 2010 Meeting
Mike Lynk moved that the minutes from the May 4, 2010 meeting be approved and Ron Gronneberg seconded the motion

Review of the 700 MHz Plan Draft Comments on Section 1-6 and Appendix A
No one had any changes to the draft of Section 1-6. IT was decided that Janell would do some checking on what other regions had done for by-laws and to see if they were required. If they are not required, they could be eliminated from the plan.

Review of the 700 MHz Plan Draft Comments on Section 7 System Design/Efficiency Requirements and Section 8 Allocation of Narrowband "General Use" Spectrum
After discussion on Sections 7 and 8, it was decided to leave all sections that are considered as optional. These sections will serve as reminders of issues that may need to be addressed in the future if 700 MHz is ever implemented in the state. Changes can always be made to the plan at that time. Industry Canada and FCC are still working on frequency issues so not sure how that will impact the section on TV stations with the Canadian TV Stations. Section 6.8 also addresses issues with Canada.

Determine Next Sessions to Review in the Plan
Comments on Section 9 - Interoperability Channels, Section 10 - Applicant Requirements and Evaluation, Section 11 - Process for Handling Unformed Regions, Section 12 - Future Planning, and Section 13 - Certification will need to be sent to Janell by Friday, July 2.

Comments
Mike reported that Ottertail County, MN had requested concurrence on the use of some 800 MHz frequencies and it was granted as they weren't being used in the adjacent area of ND.

Rick Hessinger reported that he is getting requests for licenses to include narrowbanding.

Future Meeting Sessions
Next meeting held on Wednesday, July 7 at 9:00 am. Janell will determine a conference room and let the committee know.

Adjournment
Mike made a motion to adjourn the meeting and Janell seconded.

700 MHz Planning Meeting Minutes
July 12, 2012 at 2:00 pm

Introductions:
The 700/800 MHz Advisory Committee met on July 12, 2012 at 2:00 pm. Attendance was by attending the meeting at Fraine Barracks Bldg. 30 or by conference call.

Minutes from July 21, 2010 Meeting
These minutes weren't available due to Janell Quinlan being absent due to illness.

Review Appendix A of plan
The by-laws had been sent out after the last meeting and reviewed by members. No changes were recommended.

Review of the 700 MHz Plan Draft Comments on Appendixes G, I, K, and L
No additions were recommended for these appendixes.

Report on finding of dispute resolution with Region 22 – MN
Because there was no 700 MHz committee at the time that Region 22 completed their plan, the Region 32 convener sent a letter that there was no committee and so MN should go ahead with their plan. This will now have to be addressed with them in order to complete this plan.

Determine Next Sessions to Review in the Plan
Bob Tiaman recommended that accept what had been done with the plan so far and report to the SIEC for approval to go forward with working with other regions in order to complete those sections of the plans that involved the other regions approval.

Adjournment:
Bob Steckler made a motion to adjourn the meeting and Karen seconded.

700 MHz Planning Meeting Minutes
Wednesday, July 21, 2010 at 9:00 am

Introductions
The 700/800 MHz Advisory Committee met on Wednesday, July 21, 2010 at 9:00 am. Those attending at the TAG Conference Room in Building 30 at Fraine Barracks were Mike Lynk and Janell Quinlan. Participating by conference call was Ron Gronneberg and Karen Kempert. Brian Zastoupil, Bob Steckler and Bob Timian were absent.

Minutes from June 2, 2010 Meeting

Mike Lynk moved that the minutes from the June 2, 2010 meeting be approved and Ron Gronneberg seconded the motion

Review of the 700 MHz Plan Draft Comments on Section 7 System Design/Efficiency Requirements and Section 8 Allocation of Narrowband "General Use" Spectrum
After relooking at Section 8.4 System Implementation, Ron made a motion to put this section on hold until further information is available and Janell seconded. Janell reported on the work she was doing in putting together by-laws.

Review of the Comments on Section 9 - Interoperability Channels, Section 10 - Applicant Requirements and Evaluation, Section 11 - Process for Handling Unformed Regions, Section 12 - Future Planning, and Section 13 - Certification
Section 9.1 Introduction will need to be worded to how committee works with SIEC. No other comments were brought forward on these sections.

Determine Next Sessions to Review in the Plan
Comments on Appendixes G, I, K, and L will need to be sent to Janell by Friday, August 13.

Comments
Janell will try to put all the changes in Sections 1-13 together and send out. She will also check with Region 22 - MN on what was done with them for dispute resolution to get their plan approved.

Future Meeting Sessions
Next meeting held on Wednesday, August 18 at 9:00 am. Janell will determine a conference room and let the committee know.

Adjournment
Ron made a motion to adjourn the meeting and Karen seconded.

700 MHz Planning Meeting Minutes
Wednesday, August 18, 2010 at 9:00 am

Introductions
The 700/800 MHz Advisory Committee met on Wednesday, August 18, 2010 at 9:00 am. Those attending at the TAG Conference Room in Building 30 at Fraine Barracks were Mike Lynk, Bob Steckler and Bob Timian. Participating by conference call was Ron Gronneberg, Karen Kempert and Brian Zastoupil,

Minutes from July 21, 2010 Meeting
These minutes weren't available due to Janell Quinlan being absent due to illness.

Review Appendix A of plan
The by-laws had been sent out after the last meeting and reviewed by members. No changes were recommended.

Review of the 700 MHz Plan Draft Comments on Appendixes G, I, K, and L
No additions were recommended for these appendixes.

Report on finding of dispute resolution with Region 22 – MN
Because there was no 700 MHz committee at the time that Region 22 completed their plan, the Region 32 convener sent a letter that there was no committee and so MN should go

ahead with their plan. This will now have to be addressed with them in order to complete this plan.

Determine Next Sessions to Review in the Plan
Bob Tiaman recommended that accept what had been done with the plan so far and report to the SIEC for approval to go forward with working with other regions in order to complete those sections of the plans that involved the other regions approval.

Adjournment
Bob Steckler made a motion to adjourn the meeting and Karen seconded.

700/800 MHz Conference Call Minutes
July 23, 2015 at 1:30 pm

Roll Call – Mike Lynk, Bob Steckler, Brian Zastoupil, Karen Kempert, Ron Gronneberg, Janell Quinlan Absent: Bob Timian

Review plans -

Janell gave a briefing of the updates to the 800 MHz plan was committee members.

Mike explained why changes needed to be made to the 700 MHz plan based on legislation. Also the requirements of the FCC to have the plan changes sent out by October.

Vote on sending 700 MHz plan to other regions and FCC - This was put on hold until further review.

Other Business – Dan Hawkins from OEC suggested that we may want to do a VLAW31 Waiver with Canada for border operations. Karen Kempert made a motion to pursue the waiver with Canada and Brian seconded it. Motion carried.

700/800 MHz Conference Call Minutes
August 28, 2015 at 9:30 am

Roll Call: Participating on the conference call was Bob Steckler, Bob Timian, Brian Zastoupil, Ron Gronneberg, Mike Lynk and Janell Quinlan. Absent was Karen Kempert.

Brian Zastoupil made a motion to approve the July 23, 2015 minutes and Ron Gronneberg seconded. The motion to approve the minutes carried.

Ron Gronneberg made a motion to approve the 800 MHz Plan and Bob Timian seconded. The motion to approve the 800 MHz Plan carried.

Bob Timian made a motion to approve the 700 MHz Plan and send to other regions for approval and Bob Steckler seconded. The motion to approve and send to other regions for approval of the 700 MHz Plan carried.

Bob Timian made a motion to adjourn and seconded by Bob Steckler

700/800 MHz Conference Call Minutes
April 4, 2016 at 10:00 pm

Roll Call: Ron Gronneberg, Karen Kempert, Mike Lynk, Janell Quinlan, Bob Steckler, & Brian Zastoupil
Absent: Bob Timian

Karen Kempert made a motion to approve the minutes from the August 28, 2015 conference call. Brain Zastoupil seconded and the motion carried.

Janell Quinlan report that we had received concurrence from Region 22 – MN and Region – 38 SD last finally. Region 28 - MT finally responded with their concurrence.

Ron Gronneberg made a motion to send the 700 MHz plan to the FCC for approval. Karen Kempert seconded and the motion carried.

Mike Lynk report on the status of VLAW31 Waiver with Canada. Dan Hawkins, OEC contact point assisted in developing this waiver. The federal government is working on this across the whole US/Canadian border. Talks are on-going but the progress is slow.

Mike reported that there is an informal agreement with the Canadian provinces of Saskatchewan and Alberta. Karen Kempert raised the question if there in anything in place with Manitoba. Mike reported that currently that can go through MN who has an 800 MHz system that can patch through to the Manitoba 800 MHz system. ND can make an adjustment on a tower along the border to use VLAW31 with Manitoba.

Later in April, Mike is participating in a meeting with MT, Saskatchewan and Alberta to further discuss communication issues.

The next meeting will be in the August/September time frame unless FCC needs something to approve the 700 MHz plan.

Ron Gronneberg made a motion to adjourn. Bob Steckler seconded and the motion carried.

700/800 MHz Planning Meeting Minutes Draft
Thursday, May 18, 2017 at 1:30 am
Fraine Barracks Bldg. 35 - DES Conference Room
Conference Call Phone Number: 1-877-820-7831 Passcode: 950503

Roll was taken. Present: Bob Timian, Brian Zastoupil, Mike Lynk, Karen Kempert, Ron Gronneberg and Janell Quinlan
Absent: Bob Steckler

Minutes of last meeting of April 2, 2016 were presented. Karen made a motion to approve and Brian second. Motion carried.

Report on NRPC Meeting in Dallas on May 2 &3 was given by Janell Quinlan and NPRC conference call of May 17. Topics presented were:

- the CAPRAD training and future CAPRAD training in Denver during APCO conference on enhancements,
- applying for funding to attend meeting in Denver,
- updated bylaws were voted on and approved,
- exploring an uniform date for all regions to use when requesting approval of applications from adjacent regions to be voted on in Denver
- FCC is talking about updating 800 MHz plans but no guidance has been issued,
- comments due on May 22 on Air to Ground Canadian NRM Docket 13-87.

A legislative report on SIRN was presented by Mike Lynk and Karen Kempert. The Senate Bill was done away with and everything went into House Bill 1178. Main points was the funding mechanism of collecting 50¢ from 9-1-1 collections revenue on phones in the state, with project development headed by ITD and SIEC is the managing board. It also added Indian Commission and a representative from the Senate and a representative from the House to serve on the SIEC. A loan from the Bank of ND will assist ITD in getting the project started.

Beings FCC is looking to update 800 MHz Plan, the committee took another look to see if there were any updates that should be addressed now. Brian noted that NPSTC had done some name changing to the ITAC in 4.1.3. Brian said he would make the changes so the new version could be shared with the committee. Karen made a motion that the changes could be approved by an email and Ron seconded it. Motion carried.

Mike gave a report on encryption. At the SWIC meeting, Jimmy Downs presented on the federal agency set up in FL to handle nationwide encryption. The agency coordinates encryption codes for public safety so can register codes with them. They do not recommend IES but AES 256 instead. Mike is going to work on registering encryption codes for use in the current state structure and SIRN.

The VLAW31 Waiver with Canada was approved by the FCC to use with incidents along the border. A letter had to be sent to MT and MN law enforcement of the potential use. MT also applied and got this waiver.

All members are willing to continue to serve on the committee and had not heard of anyone wanting to be a new member on the committee.

There was no other business brought up.

Closing comments were made by Janell to remind people to get their name to Mike if they are interested in getting funding to attend the NRPC meeting in Denver on Tuesday, August 15. There is only funding for 20 and it first come, first served.

Future meeting sessions would be called if issues came up from NRPC or FCC.

Karen made a motion to adjourn and Brian second. Motion carried.

700/800 MHz Planning Meeting Minutes Draft
Monday, November 20, 2017 at 1:30 am
Fraine Barracks Bldg. 35 - DES Conference Room
Conference Call Phone Number: 1-877-820-7831 Passcode: 950503

Roll was taken. Present: Bob Timian, Brian Zastoupil, Mike Lynk, Karen Kempert, Ron Gronneberg, Bob Steckler and Janell Quinlan
Absent:

Minutes of last meeting of May 18, 2017 were presented. Karen made a motion to approve and Ron second. Motion carried.

Brian Zastoupil had submitted a request for Clay County to add two 800 MHz conventional repeaters to assist in mutual aid interoperability. It would utilize the two national interoperability frequencies of 8TAC92/8TAC93. The City of Moorhead shall acquire and

maintain the applicable FCC licenses to cover operation of these repeaters and surrounding service area. It is not trunked and will analog only. It will not impact the State Interoperability Radio Network (SIRN) project and should fit into that plan. In order to move forward they need a letter from the committee approving it. Bob Timian made a motion to approve which was seconded by Karen. Brian recused himself from the vote beings he put in the request. Motion carried. As chair, Mike will sign the request letter and return to Brian.

Other business brought up was that FEMA Region VII Communication Plan draft had been sent to Mike to have it reviewed for accuracy. He would be asking those that contributed information to the plan to review it.

Also at a SWIC meeting that Mike attended, it was encouraged that FirstNet be added to State Communications Interoperability Plans (SCIP). It would be addressed and presented to the SIEC for review and approval.

There were no additional comments.

Future meeting sessions will be called if issues come up.

Karen made a motion to adjourn and Bob Steckler seconded it. Motion carried.

NOTICE OF MEETING
ACCESS TO PUBLIC RECORDS
SECRETARY OF STATE
SFN 51392 (01-04)

Secretary of State
State of North Dakota
600 E Boulevard Ave Dept 108
Bismarck ND 58505-0500
Telephone 701-328-3665
Toll Free 800-352-0867
Fax 701-328-1690

		Date 03/22/2010	
Agency/Organization Name ND Dept. of Emergency Services - Div. of State Radio Communications		Telephone # (701) 328-8100	
Address Box 5511	City Bismarck	State ND	Zip Code +4 585065511
Contact Person Janell Quinlan	E-mail address jquinlan@nd.gov	Telephone # (701) 328-8180	

The attached information is being submitted according to North Dakota Century Code, Chapter 44-04.
Check one of the following:

☐ North Dakota Century Code, Section 44-04-18(1)

The above named agency does not have an office and is providing the name and telephone number of a contact person who can provide access to its public records.

☐ North Dakota Century Code, Section 44-04-20(3)

The above named agency is filing their January annual schedule of regular meetings that are planned to be held throughout the year. Filing the schedule is not a substitute for filing a separate notice for each meeting on the schedule.

☑ North Dakota Century Code, Section 44-04-20(4)

The above named agency is filing a notice of an upcoming meeting. We are filing this notice at the same time the members of our governing body are being informed.

☐ North Dakota Century Code, Section 44-04-20(4)

The above named agency is filing a notice of a meeting to reflect a change in date or location from previously filed notices. We are filing this notice at the same time the members of our governing body are being informed.

Each entity that files notices with the Secretary of State's Office is individually responsible for filing the pertinent information as required by North Dakota Century Code, Chapter 44-04. The Secretary of State's Office is only the filing office and cannot answer specific questions regarding the information that must be included with the filing. For guidance, entities should read North Dakota Century Code, Chapter 44-04, check with their legal counsel, or refer to the Open Records and Meetings Manual prepared by the Office of the Attorney General.

Here are a few of the guidelines from the Open Records and Meetings Manual. All meeting notices, including executive sessions, must contain the following information: date, time, and location; topics to be considered where such listing is practicable (for example, not with the annual filing of regularly scheduled meetings) (note: topics discussed at an emergency or special meeting are limited to those included in the notice); general subject matter of any executive session expected to be held during the meeting; telephone or video conferences must include the location of the speaker phone or monitor; a telephone number for arranging special accommodations.

March 30, 2010 at 2:00 pm
Fraine Barracks Bldg. 30
Upstairs Large Conference Room

1. Introductions
2. Combination of the 700 and 800 MHz Advisory Committees
3. Report on National Regional Planning Council (NRPC) 700/800 MHz Meeting
4. Review of the 700 MHz Plan Draft
5. Future Meeting Sessions

NOTICE OF MEETING
ACCESS TO PUBLIC RECORDS
SECRETARY OF STATE
SFN 51392 (01-04)

Secretary of State
State of North Dakota
600 E Boulevard Ave Dept 108
Bismarck ND 58505-0500
Telephone 701-328-3665
Toll Free 800-352-0867
Fax 701-328-1690

		Date 04/26/2010	
Agency/Organization Name ND Dept. of Emergency Services - Div. of State Radio Communications		Telephone # (701) 328-8100	
Address Box 5511	City Bismarck	State ND	Zip Code +4 585065511
Contact Person Janell Quinlan	E-mail address jquinlan@nd.gov	Telephone # (701) 328-8180	

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700 MHz Planning Meeting Agenda
May 4, 2010 at 2:00 pm
Fraine Barracks Bldg. 30
Upstairs Large Conference Room

1. Introductions
2. Report on SIEC Meeting
3. Review of the 700 MHz Plan Draft Comments on Section 5 Notification and Section 6 Regional Plan Administration
4. Determine Next Sessions to Review in the Plan
5. Comments
6. Future Meeting Sessions

NOTICE OF MEETING
ACCESS TO PUBLIC RECORDS
SECRETARY OF STATE
SFN 51392 (01-04)

Secretary of State
State of North Dakota
600 E Boulevard Ave Dept 108
Bismarck ND 58505-0500
Telephone 701-328-3665
Toll Free 800-352-0867
Fax 701-328-1690

		Date: 05/25/2010	
Agency/Organization Name: ND Dept. of Emergency Services - Div. of State Radio Communications		Telephone #: (701) 328-8100	
Address: Box 5511	City: Bismarck	State: ND	Zip Code +4: 585065511
Contact Person: Janell Quinlan	E-mail address: jquinlan@nd.gov	Telephone #: (701) 328-8180	

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June 2, 2010 at 9:00 am
Fraine Barracks Bldg. 30
Upstairs Large Conference Room

1. Introductions
2. Minutes of May 4, 2010 meeting
3. Review Section 1- 6 and Appendix A of plan
4. Review of the 700 MHz Plan Draft Comments on Section 7 System Design/Efficiency Requirements and Section 8 Allocation of Narrowband "General Use" Spectrum
5. Determine Next Sessions to Review in the Plan
6. Comments
7. Future Meeting Sessions

NOTICE OF MEETING
ACCESS TO PUBLIC RECORDS
SECRETARY OF STATE
SFN 51392 (01-04)

Secretary of State
State of North Dakota
600 E Boulevard Ave Dept 108
Bismarck ND 58505-0500
Telephone 701-328-3665
Toll Free 800-352-0867
Fax 701-328-1690

		Date 07/12/2010	
Agency/Organization Name ND Dept. of Emergency Services - Div. of State Radio Communications		Telephone # (701) 328-8100	
Address Box 5511	City Bismarck	State ND	Zip Code +4 585065511
Contact Person Janell Quinlan	E-mail address jquinlan@nd.gov	Telephone # (701) 328-8180	

The attached information is being submitted according to North Dakota Century Code, Chapter 44-04.
Check one of the following:

☐ North Dakota Century Code, Section 44-04-18(1)

The above named agency does not have an office and is providing the name and telephone number of a contact person who can provide access to its public records.

☐ North Dakota Century Code, Section 44-04-20(3)

The above named agency is filing their January annual schedule of regular meetings that are planned to be held throughout the year. Filing the schedule is not a substitute for filing a separate notice for each meeting on the schedule.

☑ North Dakota Century Code, Section 44-04-20(4)

The above named agency is filing a notice of an upcoming meeting. We are filing this notice at the same time the members of our governing body are being informed.

☐ North Dakota Century Code, Section 44-04-20(4)

The above named agency is filing a notice of a meeting to reflect a change in date or location from previously filed notices. We are filing this notice at the same time the members of our governing body are being informed.

Each entity that files notices with the Secretary of State's Office is individually responsible for filing the pertinent information as required by North Dakota Century Code, Chapter 44-04. The Secretary of State's Office is only the filing office and cannot answer specific questions regarding the information that must be included with the filing. For guidance, entities should read North Dakota Century Code, Chapter 44-04, check with their legal counsel, or refer to the Open Records and Meetings Manual prepared by the Office of the Attorney General.

Here are a few of the guidelines from the Open Records and Meetings Manual. All meeting notices, including executive sessions, must contain the following information: date, time, and location; topics to be considered where such listing is practicable (for example, not with the annual filing of regularly scheduled meetings) (note: topics discussed at an emergency or special meeting are limited to those included in the notice); general subject matter of any executive session expected to be held during the meeting; telephone or video conferences must include the location of the speaker phone or monitor; a telephone number for arranging special accommodations.

700 MHz Planning Meeting Agenda
July 21, 2010 at 9:00 am
Fraine Barracks Bldg. 30
Upstairs Large Conference Room

1. Introductions
2. Minutes of June 2, 2010 meeting
3. Review Section 7-8 and Appendix A of plan
4. Review of the 700 MHz Plan Draft Comments on Section 9 -13
5. Determine Next Sessions to Review in the Plan
6. Comments
7. Future Meeting Sessions

NOTICE OF MEETING
ACCESS TO PUBLIC RECORDS
SECRETARY OF STATE
SFN 51392 (01-04)

Secretary of State
State of North Dakota
600 E Boulevard Ave Dept 108
Bismarck ND 58505-0500
Telephone 701-328-3665
Toll Free 800-352-0867
Fax 701-328-1690

		Date 08/13/2010	
Agency/Organization Name ND Dept of Emergency Services - Div. of State Radio Communications		Telephone # (701) 328-8100	
Address Box 5511	City Bismarck	State ND	Zip Code +4 585065511
Contact Person Janell Quinlan	E-mail address jquinlan@nd.gov	Telephone # (701) 328-8180	

The attached information is being submitted according to North Dakota Century Code, Chapter 44-04.
Check one of the following:

☐ North Dakota Century Code, Section 44-04-18(1)

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700 MHz Planning Meeting Agenda
August 18, 2010 at 9:00 am
Fraine Barracks Bldg. 30
Upstairs Large Conference Room

1. Introductions
2. Minutes of July 21, 2010 meeting
3. Review Appendix A of plan
4. Review of the 700 MHz Plan Draft Comments on Appendixes G, I, K, and L
5. Report on finding of dispute resolution with Region 22 - MN
6. Determine Next Sessions to Review in the Plan
7. Comments
8. Future Meeting Sessions

700 MHz Planning Meeting Agenda
July 12, 2012 at 2:00 pm
Fraine Barracks Bldg. 30
Upstairs Large Conference Room

1. Introductions
2. Minutes of August 8, 2010 meeting
3. Review plan
4. Vote on sending plan to SIEC and other regions
5. Other Business
6. Comments
7. Future Meeting Sessions

700/800 MHz Planning Meeting Agenda
Thursday, May 28, 2015 at 10:00 am
Fraine Barracks Bldg. 35
DES Conference Room

1. Introductions

2. Minutes of last meeting
3. Review 700 MHz Plan revisions
4. Review 800 MHz Plan
5. Other Business
6. Comments
7. Future Meeting Sessions

700/800 MHz Conference Call Agenda
July 23, 2015 at 1:30 pm
Fraine Barracks Bldg. 30
Upstairs Large Conference Room

Conference Call Number: 1-877-820-7831
Passcode: 950503

1. Roll Call
2. Review plans
3. Vote on sending 700 MHz plan to other regions and FCC
4. Other Business
5. Comments
6. Future Meeting Sessions

700/800 MHz Conference Call Agenda
August 28, 2015 at 9:30 am
Fraine Barracks Bldg. 35
DES Conference Room

Conference Call Number: 1-877-820-7831
Passcode: 950503

1. Roll Call
2. Minutes
3. Review plans
4. Vote on sending 700 MHz plan to other regions and FCC

5. Other Business
6. Comments
7. Future Meeting Sessions

700/800 MHz Conference Call Agenda
April 4, 2016 at 10:00 pm
Fraine Barracks Bldg. 35
DES Conference Room

Conference Call Number: 1-877-820-7831
Passcode: 846535

1. Roll Call
2. Minutes
3. Received concurrence letters for 700 MHz Plan
4. Vote on sending to FCC
5. Status of VLAW31 Waiver with Canada
6. Other Business
7. Comments
8. Future Meeting Sessions

700/800 MHz Planning Meeting Agenda
Thursday, May 18, 2017 at 1:30 am
Fraine Barracks Bldg. 35
DES Conference Room

Conference Call
Phone Number: 1-877-820-7831
Passcode: 950503

1. Introductions
2. Minutes of last meeting
3. Report on NRPC Meeting in Dallas – Janell Quinlan
4. Legislative Report on SIRN – Mike Lynk and Karen Kempert
5. Discuss 800 MHz Plan

6. Encryption
7. Status of VLAW31 Waiver with Canada
8. New Members
9. Other Business
10. Comments
11. Future Meeting Sessions

700/800 MHz Planning Meeting Agenda
Monday, November 20, 2017 at 1:30 am
Fraine Barracks Bldg. 35 - DES Conference Room
Conference Call - Phone Number: 1-877-820-7831 Passcode: 950503

1. Introductions
   Present
   Absent
2. Minutes of last meeting – May 18, 2017 1st: 2nd:
3. Clay County Request
4. Other Business
5. Comments
6. Future Meeting Sessions

From: State of ND, DoNotReply
Sent: Tuesday, May 16, 2017 5:22 PM
To: Quinlan, Janell S. <jquinlan@nd.gov>
Subject: 700/800 MHz Technical Advisory Committee Meeting - Regular - Subscription statistics - North Dakota Public Meeting Notices

You have 4 subscribers to your meeting:

Entity: Department of Emergency Services
Governing Body: 700/800 MHz Technical Advisory Committee
Meeting Title: 700/800 MHz Technical Advisory Committee Meeting
Meeting Date and Time: 5/18/2017 1:30 PM
Meeting Location: DES Conference Room in Bldg. 35
Box 5511
Fraine Barracks Lane, Bldg. 35
Bismarck, ND 585065511

List of Subscribers:
karise.goelz@gfcounty.org
megan_carranza@heitkamp.senate.gov
bfahlsing@starkcountynd.gov
tkruger@nd.gov

From: State of ND, DoNotReply
Sent: Thu 11/16/2017 11:10 AM
To: Quinlan, Janell S. <jquinlan@nd.gov>
Subject: 700/800 MHz Technical Advisory Committee Meeting - Regular - Subscription statistics - North Dakota Public Meeting Notices

You have 8 subscribers to your meeting:

Entity: Department of Emergency Services
Governing Body: 700/800 MHz Technical Advisory Committee
Meeting Title: 700/800 MHz Technical Advisory Committee Meeting
Meeting Date and Time: 11/20/2017 1:30 PM
Meeting Location: Fraine Barracks, Bldg. 35 Conference Room
Box 5511
Fraine Barracks Lane, Bldg. 35
Bismarck, ND 585065511

List of Subscribers:
karise.goelz@gfcounty.org
lebachmeier@nd.gov
megan_carranza@heitkamp.senate.gov
jbreuer@co.richland.nd.us
bfahlsing@starkcountynd.gov
jhageman@forumcomm.com
bault@grandforksgov.com
tkruger@nd.gov

19.0 Appendix F – Interoperability Channel MOU Template

On State Interoperability Executive Committee Letterhead

TO: (signer of application and title)
(agency name)

FROM: (name), State Interoperability Executive Committee Chairperson

DATE: (mm/dd/yyyy)

SUBJECT: Memorandum of Understanding for Operating on the 700 MHz Interoperability Channels

This memorandum of understanding (hereafter referred to as MOU) shall be attached to the application when submitting it. By virtue of signing and submitting the application and this MOU, (agency name) (hereafter referred to as APPLICANT) affirms its willingness to comply with the proper operation of the Interoperability (interoperability) channels as dictated by the State Interoperability Executive Committee (here after referred to as SIEC) as approved by the Federal Communications Commission (hereafter referred to as FCC) and by the conditions of this MOU.

The APPLICANT shall abide by the conditions of this MOU which are as follows:

- To operate by all applicable State, County, and City laws/ordinances.
- To utilize "plain language" for all transmissions.
- To monitor the Calling Channel(s) and coordinate the use of the Tactical Channels.
- To identify inappropriate use and mitigate the same from occurring in the future.
- To limit secondary Trunked operation to the interoperability channels specifically approved on the application and limited to channels listed below.
- To relinquish secondary Trunked operation of approved interoperability channels to requests for primary conventional access with same or higher priority.
- To mitigate contention for channels by exercising the Priority Levels identified in this MOU.

The preceding conditions are the primary, though not complete, requirements for operating in the interoperability channels. Refer to the Region Plan for the complete requirements list.

20.0 Appendix G – Region 32 Channel Allotments

07/22/09 Region 32 - North Dakota
Channel Allotments by Class

General Use

County	Band	FCC Channel Number	Base Frequency	Mobile Frequency	Notation
Adams	Voice 25KHz	17-20	769.112500	799.112500	
	Voice 25KHz	81-84	769.512500	799.512500	
	Voice 25KHz	133-136	769.837500	799.837500	
	Voice 25KHz	209-212	770.312500	800.312500	
	Voice 25KHz	249-252	770.562500	800.562500	
	Voice 25KHz	289-292	770.812500	800.812500	
	Voice 25KHz	345-348	771.162500	801.162500	
	Voice 25KHz	389-392	771.437500	801.437500	
	Voice 25KHz	441-444	771.762500	801.762500	
	Voice 25KHz	517-520	772.237500	802.237500	
	Voice 25KHz	605-608	772.787500	802.787500	
	Voice 25KHz	757-760	773.737500	803.737500	
	Voice 25KHz	941-944	774.887500	804.887500	
Barnes	Voice 25KHz	41-44	769.262500	799.262500	
	Voice 25KHz	85-88	769.537500	799.537500	
	Voice 25KHz	125-128	769.787500	799.787500	
	Voice 25KHz	201-204	770.262500	800.262500	
	Voice 25KHz	245-248	770.537500	800.537500	
	Voice 25KHz	297-300	770.862500	800.862500	
	Voice 25KHz	345-348	771.162500	801.162500	
	Voice 25KHz	389-392	771.437500	801.437500	
	Voice 25KHz	461-464	771.887500	801.887500	
	Voice 25KHz	521-524	772.262500	802.262500	
	Voice 25KHz	561-564	772.512500	802.512500	
	Voice 25KHz	617-620	772.862500	802.862500	
	Voice 25KHz	661-664	773.137500	803.137500	
	Voice 25KHz	701-704	773.387500	803.387500	
	Voice 25KHz	869-872	774.437500	804.437500	
	Voice 25KHz	913-916	774.712500	804.712500	
Benson	Voice 25KHz	41-44	769.262500	799.262500	
	Voice 25KHz	97-100	769.612500	799.612500	
	Voice 25KHz	169-172	770.062500	800.062500	
	Voice 25KHz	249-252	770.562500	800.562500	
	Voice 25KHz	357-360	771.237500	801.237500	
	Voice 25KHz	401-404	771.512500	801.512500	
	Voice 25KHz	477-480	771.987500	801.987500	
	Voice 25KHz	557-560	772.487500	802.487500	
	Voice 25KHz	621-624	772.887500	802.887500	
	Voice 25KHz	677-680	773.237500	803.237500	

	Voice 25KHz	717-720	773.487500	803.487500
	Voice 25KHz	757-760	773.737500	803.737500
	Voice 25KHz	833-836	774.212500	804.212500
	Voice 25KHz	901-904	774.637500	804.637500
Billings	Voice 25KHz	129-132	769.812500	799.812500
	Voice 25KHz	373-376	771.337500	801.337500
	Voice 25KHz	417-420	771.612500	801.612500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	629-632	772.937500	802.937500
	Voice 25KHz	709-712	773.437500	803.437500
Bottineau	Voice 25KHz	81-84	769.512500	799.512500
	Voice 25KHz	177-180	770.112500	800.112500
	Voice 25KHz	245-248	770.537500	800.537500
	Voice 25KHz	289-292	770.812500	800.812500
	Voice 25KHz	329-332	771.062500	801.062500
	Voice 25KHz	389-392	771.437500	801.437500
	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	533-536	772.337500	802.337500
	Voice 25KHz	577-580	772.612500	802.612500
	Voice 25KHz	617-620	772.862500	802.862500
	Voice 25KHz	669-672	773.187500	803.187500
	Voice 25KHz	753-756	773.712500	803.712500
	Voice 25KHz	861-864	774.387500	804.387500
	Voice 25KHz	917-920	774.737500	804.737500
Bowman	Voice 25KHz	45-48	769.287500	799.287500
	Voice 25KHz	97-100	769.612500	799.612500
	Voice 25KHz	177-180	770.112500	800.112500
	Voice 25KHz	241-244	770.512500	800.512500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	329-332	771.062500	801.062500
	Voice 25KHz	381-384	771.387500	801.387500
	Voice 25KHz	421-424	771.637500	801.637500
	Voice 25KHz	473-476	771.962500	801.962500
	Voice 25KHz	541-544	772.387500	802.387500
	Voice 25KHz	585-588	772.662500	802.662500
	Voice 25KHz	625-628	772.912500	802.912500
	Voice 25KHz	705-708	773.412500	803.412500
	Voice 25KHz	749-752	773.687500	803.687500
	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	837-840	774.237500	804.237500
	Voice 25KHz	877-880	774.487500	804.487500
Burke	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	361-364	771.262500	801.262500
	Voice 25KHz	401-404	771.512500	801.512500
	Voice 25KHz	453-456	771.837500	801.837500
	Voice 25KHz	537-540	772.362500	802.362500
	Voice 25KHz	593-596	772.712500	802.712500
	Voice 25KHz	637-640	772.987500	802.987500
	Voice 25KHz	677-680	773.237500	803.237500

	Voice 25KHz	717-720	773.487500	803.487500
	Voice 25KHz	781-784	773.887500	803.887500
	Voice 25KHz	869-872	774.437500	804.437500
	Voice 25KHz	913-916	774.712500	804.712500
Burleigh	Voice 25KHz	13-16	769.087500	799.087500
	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	97-100	769.612500	799.612500
	Voice 25KHz	169-172	770.062500	800.062500
	Voice 25KHz	209-212	770.312500	800.312500
	Voice 25KHz	249-252	770.562500	800.562500
	Voice 25KHz	297-300	770.862500	800.862500
	Voice 25KHz	357-360	771.237500	801.237500
	Voice 25KHz	425-428	771.662500	801.662500
	Voice 25KHz	465-468	771.912500	801.912500
	Voice 25KHz	557-560	772.487500	802.487500
	Voice 25KHz	597-600	772.737500	802.737500
	Voice 25KHz	637-640	772.987500	802.987500
	Voice 25KHz	701-704	773.387500	803.387500
	Voice 25KHz	757-760	773.737500	803.737500
	Voice 25KHz	829-832	774.187500	804.187500
	Voice 25KHz	905-908	774.662500	804.662500
	Voice 25KHz	945-948	774.912500	804.912500
Cass	Voice 25KHz	13-16	769.087500	799.087500
	Voice 25KHz	53-56	769.337500	799.337500
	Voice 25KHz	97-100	769.612500	799.612500
	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	177-180	770.112500	800.112500
	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	357-360	771.237500	801.237500
	Voice 25KHz	405-408	771.537500	801.537500
	Voice 25KHz	449-452	771.812500	801.812500
	Voice 25KHz	513-516	772.212500	802.212500
	Voice 25KHz	585-588	772.662500	802.662500
	Voice 25KHz	637-640	772.987500	802.987500
	Voice 25KHz	677-680	773.237500	803.237500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	781-784	773.887500	803.887500
	Voice 25KHz	821-824	774.137500	804.137500
	Voice 25KHz	861-864	774.387500	804.387500
	Voice 25KHz	945-948	774.912500	804.912500
Cavalier	Voice 25KHz	49-52	769.312500	799.312500
	Voice 25KHz	93-96	769.587500	799.587500
	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	365-368	771.287500	801.287500
	Voice 25KHz	413-416	771.587500	801.587500
	Voice 25KHz	465-468	771.912500	801.912500
	Voice 25KHz	529-532	772.312500	802.312500
	Voice 25KHz	569-572	772.562500	802.562500
	Voice 25KHz	637-640	772.987500	802.987500

	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	837-840	774.237500	804.237500
Dickey	Voice 25KHz	241-244	770.512500	800.512500
	Voice 25KHz	285-288	770.787500	800.787500
	Voice 25KHz	349-352	771.187500	801.187500
	Voice 25KHz	425-428	771.662500	801.662500
	Voice 25KHz	477-480	771.987500	801.987500
	Voice 25KHz	517-520	772.237500	802.237500
	Voice 25KHz	621-624	772.887500	802.887500
	Voice 25KHz	873-876	774.462500	804.462500
	Voice 25KHz	917-920	774.737500	804.737500
Divide	Voice 25KHz	53-56	769.337500	799.337500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	341-344	771.137500	801.137500
	Voice 25KHz	381-384	771.387500	801.387500
	Voice 25KHz	425-428	771.662500	801.662500
	Voice 25KHz	473-476	771.962500	801.962500
	Voice 25KHz	513-516	772.212500	802.212500
	Voice 25KHz	553-556	772.462500	802.462500
	Voice 25KHz	617-620	772.862500	802.862500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	861-864	774.387500	804.387500
	Voice 25KHz	941-944	774.887500	804.887500
Dunn	Voice 25KHz	357-360	771.237500	801.237500
	Voice 25KHz	449-452	771.812500	801.812500
	Voice 25KHz	513-516	772.212500	802.212500
	Voice 25KHz	553-556	772.462500	802.462500
	Voice 25KHz	593-596	772.712500	802.712500
	Voice 25KHz	637-640	772.987500	802.987500
	Voice 25KHz	757-760	773.737500	803.737500
Eddy	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	177-180	770.112500	800.112500
	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	333-336	771.087500	801.087500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	465-468	771.912500	801.912500
	Voice 25KHz	517-520	772.237500	802.237500
	Voice 25KHz	589-592	772.687500	802.687500
	Voice 25KHz	637-640	772.987500	802.987500
Emmons	Voice 25KHz	161-164	770.012500	800.012500
	Voice 25KHz	201-204	770.262500	800.262500
	Voice 25KHz	257-260	770.612500	800.612500
	Voice 25KHz	349-352	771.187500	801.187500
	Voice 25KHz	393-396	771.462500	801.462500
	Voice 25KHz	457-460	771.862500	801.862500
	Voice 25KHz	517-520	772.237500	802.237500
	Voice 25KHz	565-568	772.537500	802.537500
	Voice 25KHz	605-608	772.787500	802.787500

	Voice 25KHz	669-672	773.187500	803.187500
	Voice 25KHz	717-720	773.487500	803.487500
	Voice 25KHz	869-872	774.437500	804.437500
Foster	Voice 25KHz	165-168	770.037500	800.037500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	321-324	771.012500	801.012500
	Voice 25KHz	397-400	771.487500	801.487500
	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	493-496	772.087500	802.087500
	Voice 25KHz	553-556	772.462500	802.462500
	Voice 25KHz	821-824	774.137500	804.137500
Golden Valley	Voice 25KHz	49-52	769.312500	799.312500
	Voice 25KHz	165-168	770.037500	800.037500
	Voice 25KHz	209-212	770.312500	800.312500
	Voice 25KHz	289-292	770.812500	800.812500
	Voice 25KHz	365-368	771.287500	801.287500
	Voice 25KHz	409-412	771.562500	801.562500
	Voice 25KHz	517-520	772.237500	802.237500
	Voice 25KHz	609-612	772.812500	802.812500
	Voice 25KHz	717-720	773.487500	803.487500
	Voice 25KHz	833-836	774.212500	804.212500
	Voice 25KHz	917-920	774.737500	804.737500
Grand Forks	Voice 25KHz	17-20	769.112500	799.112500
	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	173-176	770.087500	800.087500
	Voice 25KHz	213-216	770.337500	800.337500
	Voice 25KHz	289-292	770.812500	800.812500
	Voice 25KHz	341-344	771.137500	801.137500
	Voice 25KHz	409-412	771.562500	801.562500
	Voice 25KHz	453-456	771.837500	801.837500
	Voice 25KHz	533-536	772.337500	802.337500
	Voice 25KHz	581-584	772.637500	802.637500
	Voice 25KHz	633-636	772.962500	802.962500
	Voice 25KHz	673-676	773.212500	803.212500
	Voice 25KHz	713-716	773.462500	803.462500
	Voice 25KHz	753-756	773.712500	803.712500
	Voice 25KHz	825-828	774.162500	804.162500
	Voice 25KHz	865-868	774.412500	804.412500
	Voice 25KHz	905-908	774.662500	804.662500
Grant	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	337-340	771.112500	801.112500
	Voice 25KHz	377-380	771.362500	801.362500
	Voice 25KHz	429-432	771.687500	801.687500
	Voice 25KHz	469-472	771.937500	801.937500
	Voice 25KHz	525-528	772.287500	802.287500
	Voice 25KHz	569-572	772.562500	802.562500
	Voice 25KHz	613-616	772.837500	802.837500

Griggs	Voice 25KHz	253-256	770.587500	800.587500
	Voice 25KHz	353-356	771.212500	801.212500
	Voice 25KHz	445-448	771.787500	801.787500
	Voice 25KHz	501-504	772.137500	802.137500
	Voice 25KHz	625-628	772.912500	802.912500
	Voice 25KHz	745-748	773.662500	803.662500
	Voice 25KHz	785-788	773.912500	803.912500
Hettinger	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	169-172	770.062500	800.062500
	Voice 25KHz	297-300	770.862500	800.862500
	Voice 25KHz	353-356	771.212500	801.212500
	Voice 25KHz	413-416	771.587500	801.587500
	Voice 25KHz	453-456	771.837500	801.837500
	Voice 25KHz	509-512	772.187500	802.187500
	Voice 25KHz	561-564	772.512500	802.512500
	Voice 25KHz	633-636	772.962500	802.962500
	Voice 25KHz	713-716	773.462500	803.462500
	Voice 25KHz	789-792	773.937500	803.937500
	Voice 25KHz	829-832	774.187500	804.187500
	Voice 25KHz	909-912	774.687500	804.687500
Kidder	Voice 25KHz	337-340	771.112500	801.112500
	Voice 25KHz	405-408	771.537500	801.537500
	Voice 25KHz	445-448	771.787500	801.787500
	Voice 25KHz	533-536	772.337500	802.337500
	Voice 25KHz	585-588	772.662500	802.662500
	Voice 25KHz	625-628	772.912500	802.912500
	Voice 25KHz	789-792	773.937500	803.937500
La Moure	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	253-256	770.587500	800.587500
	Voice 25KHz	321-324	771.012500	801.012500
	Voice 25KHz	369-372	771.312500	801.312500
	Voice 25KHz	409-412	771.562500	801.562500
	Voice 25KHz	453-456	771.837500	801.837500
	Voice 25KHz	529-532	772.312500	802.312500
	Voice 25KHz	569-572	772.562500	802.562500
	Voice 25KHz	901-904	774.637500	804.637500
Logan	Voice 25KHz	81-84	769.512500	799.512500
	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	417-420	771.612500	801.612500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	613-616	772.837500	802.837500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	781-784	773.887500	803.887500
	Voice 25KHz	821-824	774.137500	804.137500
	Voice 25KHz	861-864	774.387500	804.387500
McHenry	Voice 25KHz	17-20	769.112500	799.112500
	Voice 25KHz	89-92	769.562500	799.562500
	Voice 25KHz	137-140	769.862500	799.862500

	Voice 25KHz	345-348	771.162500	801.162500
	Voice 25KHz	397-400	771.487500	801.487500
	Voice 25KHz	449-452	771.812500	801.812500
	Voice 25KHz	489-492	772.062500	802.062500
	Voice 25KHz	541-544	772.387500	802.387500
	Voice 25KHz	593-596	772.712500	802.712500
	Voice 25KHz	633-636	772.962500	802.962500
	Voice 25KHz	821-824	774.137500	804.137500
	Voice 25KHz	877-880	774.487500	804.487500
McIntosh	Voice 25KHz	17-20	769.112500	799.112500
	Voice 25KHz	129-132	769.812500	799.812500
	Voice 25KHz	293-296	770.837500	800.837500
	Voice 25KHz	361-364	771.262500	801.262500
	Voice 25KHz	401-404	771.512500	801.512500
	Voice 25KHz	441-444	771.762500	801.762500
	Voice 25KHz	485-488	772.037500	802.037500
	Voice 25KHz	577-580	772.612500	802.612500
	Voice 25KHz	705-708	773.412500	803.412500
	Voice 25KHz	793-796	773.962500	803.962500
	Voice 25KHz	909-912	774.687500	804.687500
McKenzie	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	177-180	770.112500	800.112500
	Voice 25KHz	241-244	770.512500	800.512500
	Voice 25KHz	329-332	771.062500	801.062500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	429-432	771.687500	801.687500
	Voice 25KHz	469-472	771.937500	801.937500
	Voice 25KHz	533-536	772.337500	802.337500
	Voice 25KHz	573-576	772.587500	802.587500
	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	865-868	774.412500	804.412500
McLean	Voice 25KHz	81-84	769.512500	799.512500
	Voice 25KHz	125-128	769.787500	799.787500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	333-336	771.087500	801.087500
	Voice 25KHz	389-392	771.437500	801.437500
	Voice 25KHz	441-444	771.762500	801.762500
	Voice 25KHz	497-500	772.112500	802.112500
	Voice 25KHz	577-580	772.612500	802.612500
	Voice 25KHz	617-620	772.862500	802.862500
	Voice 25KHz	673-676	773.212500	803.212500
	Voice 25KHz	785-788	773.912500	803.912500
	Voice 25KHz	913-916	774.712500	804.712500
Mercer	Voice 25KHz	213-216	770.337500	800.337500
	Voice 25KHz	293-296	770.837500	800.837500
	Voice 25KHz	365-368	771.287500	801.287500
	Voice 25KHz	405-408	771.537500	801.537500
	Voice 25KHz	457-460	771.862500	801.862500
	Voice 25KHz	521-524	772.262500	802.262500

	Voice 25KHz	565-568	772.537500	802.537500
	Voice 25KHz	609-612	772.812500	802.812500
	Voice 25KHz	717-720	773.487500	803.487500
	Voice 25KHz	869-872	774.437500	804.437500
Morton	Voice 25KHz	45-48	769.287500	799.287500
	Voice 25KHz	85-88	769.537500	799.537500
	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	177-180	770.112500	800.112500
	Voice 25KHz	241-244	770.512500	800.512500
	Voice 25KHz	285-288	770.787500	800.787500
	Voice 25KHz	329-332	771.062500	801.062500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	537-540	772.362500	802.362500
	Voice 25KHz	581-584	772.637500	802.637500
	Voice 25KHz	621-624	772.887500	802.887500
	Voice 25KHz	677-680	773.237500	803.237500
	Voice 25KHz	749-752	773.687500	803.687500
	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	837-840	774.237500	804.237500
	Voice 25KHz	877-880	774.487500	804.487500
	Voice 25KHz	917-920	774.737500	804.737500
Mountrail	Voice 25KHz	13-16	769.087500	799.087500
	Voice 25KHz	137-140	769.862500	799.862500
	Voice 25KHz	201-204	770.262500	800.262500
	Voice 25KHz	249-252	770.562500	800.562500
	Voice 25KHz	321-324	771.012500	801.012500
	Voice 25KHz	373-376	771.337500	801.337500
	Voice 25KHz	417-420	771.612500	801.612500
	Voice 25KHz	461-464	771.887500	801.887500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	545-548	772.412500	802.412500
	Voice 25KHz	821-824	774.137500	804.137500
	Voice 25KHz	877-880	774.487500	804.487500
Nelson	Voice 25KHz	241-244	770.512500	800.512500
	Voice 25KHz	369-372	771.312500	801.312500
	Voice 25KHz	421-424	771.637500	801.637500
	Voice 25KHz	485-488	772.037500	802.037500
	Voice 25KHz	525-528	772.287500	802.287500
	Voice 25KHz	565-568	772.537500	802.537500
	Voice 25KHz	605-608	772.787500	802.787500
	Voice 25KHz	665-668	773.162500	803.162500
Oliver	Voice 25KHz	345-348	771.162500	801.162500
	Voice 25KHz	397-400	771.487500	801.487500
	Voice 25KHz	485-488	772.037500	802.037500
	Voice 25KHz	529-532	772.312500	802.312500
	Voice 25KHz	589-592	772.687500	802.687500
	Voice 25KHz	629-632	772.937500	802.937500
	Voice 25KHz	709-712	773.437500	803.437500

Pembina	Voice 25KHz	177-180	770.112500	800.112500
	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	293-296	770.837500	800.837500
	Voice 25KHz	349-352	771.187500	801.187500
	Voice 25KHz	397-400	771.487500	801.487500
	Voice 25KHz	441-444	771.762500	801.762500
	Voice 25KHz	493-496	772.087500	802.087500
	Voice 25KHz	561-564	772.512500	802.512500
	Voice 25KHz	613-616	772.837500	802.837500
	Voice 25KHz	669-672	773.187500	803.187500
	Voice 25KHz	709-712	773.437500	803.437500
	Voice 25KHz	757-760	773.737500	803.737500
	Voice 25KHz	821-824	774.137500	804.137500
	Voice 25KHz	901-904	774.637500	804.637500
Pierce	Voice 25KHz	53-56	769.337500	799.337500
	Voice 25KHz	373-376	771.337500	801.337500
	Voice 25KHz	421-424	771.637500	801.637500
	Voice 25KHz	469-472	771.937500	801.937500
	Voice 25KHz	525-528	772.287500	802.287500
	Voice 25KHz	565-568	772.537500	802.537500
	Voice 25KHz	605-608	772.787500	802.787500
	Voice 25KHz	709-712	773.437500	803.437500
	Voice 25KHz	793-796	773.962500	803.962500
	Voice 25KHz	909-912	774.687500	804.687500
Ramsey	Voice 25KHz	13-16	769.087500	799.087500
	Voice 25KHz	85-88	769.537500	799.537500
	Voice 25KHz	129-132	769.812500	799.812500
	Voice 25KHz	209-212	770.312500	800.312500
	Voice 25KHz	257-260	770.612500	800.612500
	Voice 25KHz	297-300	770.862500	800.862500
	Voice 25KHz	345-348	771.162500	801.162500
	Voice 25KHz	393-396	771.462500	801.462500
	Voice 25KHz	449-452	771.812500	801.812500
	Voice 25KHz	497-500	772.112500	802.112500
	Voice 25KHz	537-540	772.362500	802.362500
	Voice 25KHz	577-580	772.612500	802.612500
	Voice 25KHz	629-632	772.937500	802.937500
	Voice 25KHz	705-708	773.412500	803.412500
	Voice 25KHz	749-752	773.687500	803.687500
	Voice 25KHz	789-792	773.937500	803.937500
	Voice 25KHz	861-864	774.387500	804.387500
	Voice 25KHz	945-948	774.912500	804.912500
Ransom	Voice 25KHz	165-168	770.037500	800.037500
	Voice 25KHz	209-212	770.312500	800.312500
	Voice 25KHz	397-400	771.487500	801.487500
	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	489-492	772.062500	802.062500
	Voice 25KHz	541-544	772.387500	802.387500
	Voice 25KHz	605-608	772.787500	802.787500

	Voice 25KHz	709-712	773.437500	803.437500
	Voice 25KHz	833-836	774.212500	804.212500
Renville	Voice 25KHz	57-60	769.362500	799.362500
	Voice 25KHz	129-132	769.812500	799.812500
	Voice 25KHz	169-172	770.062500	800.062500
	Voice 25KHz	209-212	770.312500	800.312500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	337-340	771.112500	801.112500
	Voice 25KHz	381-384	771.387500	801.387500
	Voice 25KHz	425-428	771.662500	801.662500
	Voice 25KHz	497-500	772.112500	802.112500
	Voice 25KHz	553-556	772.462500	802.462500
	Voice 25KHz	625-628	772.912500	802.912500
	Voice 25KHz	789-792	773.937500	803.937500
	Voice 25KHz	829-832	774.187500	804.187500
Richland	Voice 25KHz	45-48	769.287500	799.287500
	Voice 25KHz	129-132	769.812500	799.812500
	Voice 25KHz	249-252	770.562500	800.562500
	Voice 25KHz	289-292	770.812500	800.812500
	Voice 25KHz	333-336	771.087500	801.087500
	Voice 25KHz	377-380	771.362500	801.362500
	Voice 25KHz	429-432	771.687500	801.687500
	Voice 25KHz	473-476	771.962500	801.962500
	Voice 25KHz	525-528	772.287500	802.287500
	Voice 25KHz	597-600	772.737500	802.737500
	Voice 25KHz	665-668	773.162500	803.162500
	Voice 25KHz	877-880	774.487500	804.487500
Rolette	Voice 25KHz	45-48	769.287500	799.287500
	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	161-164	770.012500	800.012500
	Voice 25KHz	201-204	770.262500	800.262500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	321-324	771.012500	801.012500
	Voice 25KHz	361-364	771.262500	801.262500
	Voice 25KHz	405-408	771.537500	801.537500
	Voice 25KHz	457-460	771.862500	801.862500
	Voice 25KHz	513-516	772.212500	802.212500
	Voice 25KHz	585-588	772.662500	802.662500
	Voice 25KHz	625-628	772.912500	802.912500
	Voice 25KHz	701-704	773.387500	803.387500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	785-788	773.912500	803.912500
	Voice 25KHz	829-832	774.187500	804.187500
	Voice 25KHz	869-872	774.437500	804.437500
	Voice 25KHz	941-944	774.887500	804.887500
Sargent	Voice 25KHz	17-20	769.112500	799.112500
	Voice 25KHz	81-84	769.512500	799.512500
	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	385-388	771.412500	801.412500

	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	581-584	772.637500	802.637500
	Voice 25KHz	789-792	773.937500	803.937500
Sheridan	Voice 25KHz	325-328	771.037500	801.037500
	Voice 25KHz	381-384	771.387500	801.387500
	Voice 25KHz	433-436	771.712500	801.712500
	Voice 25KHz	481-484	772.012500	802.012500
	Voice 25KHz	549-552	772.437500	802.437500
	Voice 25KHz	861-864	774.387500	804.387500
Sioux	Voice 25KHz	125-128	769.787500	799.787500
	Voice 25KHz	369-372	771.312500	801.312500
	Voice 25KHz	449-452	771.812500	801.812500
	Voice 25KHz	493-496	772.087500	802.087500
	Voice 25KHz	549-552	772.437500	802.437500
	Voice 25KHz	593-596	772.712500	802.712500
	Voice 25KHz	661-664	773.137500	803.137500
	Voice 25KHz	709-712	773.437500	803.437500
	Voice 25KHz	785-788	773.912500	803.912500
	Voice 25KHz	825-828	774.162500	804.162500
	Voice 25KHz	901-904	774.637500	804.637500
Slope	Voice 25KHz	337-340	771.112500	801.112500
	Voice 25KHz	433-436	771.712500	801.712500
	Voice 25KHz	533-536	772.337500	802.337500
	Voice 25KHz	577-580	772.612500	802.612500
	Voice 25KHz	617-620	772.862500	802.862500
Stark	Voice 25KHz	13-16	769.087500	799.087500
	Voice 25KHz	53-56	769.337500	799.337500
	Voice 25KHz	93-96	769.587500	799.587500
	Voice 25KHz	161-164	770.012500	800.012500
	Voice 25KHz	201-204	770.262500	800.262500
	Voice 25KHz	257-260	770.612500	800.612500
	Voice 25KHz	321-324	771.012500	801.012500
	Voice 25KHz	393-396	771.462500	801.462500
	Voice 25KHz	477-480	771.987500	801.987500
	Voice 25KHz	545-548	772.412500	802.412500
	Voice 25KHz	601-604	772.762500	802.762500
	Voice 25KHz	661-664	773.137500	803.137500
	Voice 25KHz	701-704	773.387500	803.387500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	781-784	773.887500	803.887500
	Voice 25KHz	821-824	774.137500	804.137500
	Voice 25KHz	861-864	774.387500	804.387500
	Voice 25KHz	901-904	774.637500	804.637500
	Voice 25KHz	945-948	774.912500	804.912500
Steele	Voice 25KHz	325-328	771.037500	801.037500
	Voice 25KHz	381-384	771.387500	801.387500
	Voice 25KHz	469-472	771.937500	801.937500
	Voice 25KHz	549-552	772.437500	802.437500

	Voice 25KHz	597-600	772.737500	802.737500
	Voice 25KHz	793-796	773.962500	803.962500
Stutsman	Voice 25KHz	49-52	769.312500	799.312500
	Voice 25KHz	93-96	769.587500	799.587500
	Voice 25KHz	133-136	769.837500	799.837500
	Voice 25KHz	173-176	770.087500	800.087500
	Voice 25KHz	213-216	770.337500	800.337500
	Voice 25KHz	289-292	770.812500	800.812500
	Voice 25KHz	329-332	771.062500	801.062500
	Voice 25KHz	377-380	771.362500	801.362500
	Voice 25KHz	429-432	771.687500	801.687500
	Voice 25KHz	473-476	771.962500	801.962500
	Voice 25KHz	545-548	772.412500	802.412500
	Voice 25KHz	593-596	772.712500	802.712500
	Voice 25KHz	633-636	772.962500	802.962500
	Voice 25KHz	673-676	773.212500	803.212500
	Voice 25KHz	713-716	773.462500	803.462500
	Voice 25KHz	753-756	773.712500	803.712500
	Voice 25KHz	797-800	773.987500	803.987500
	Voice 25KHz	837-840	774.237500	804.237500
	Voice 25KHz	877-880	774.487500	804.487500
	Voice 25KHz	941-944	774.887500	804.887500
Towner	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	333-336	771.087500	801.087500
	Voice 25KHz	385-388	771.412500	801.412500
	Voice 25KHz	441-444	771.762500	801.762500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	549-552	772.437500	802.437500
	Voice 25KHz	613-616	772.837500	802.837500
	Voice 25KHz	661-664	773.137500	803.137500
Traill	Voice 25KHz	333-336	771.087500	801.087500
	Voice 25KHz	373-376	771.337500	801.337500
	Voice 25KHz	417-420	771.612500	801.612500
	Voice 25KHz	477-480	771.987500	801.987500
	Voice 25KHz	557-560	772.487500	802.487500
	Voice 25KHz	877-880	774.487500	804.487500
	Voice 25KHz	917-920	774.737500	804.737500
Walsh	Voice 25KHz	165-168	770.037500	800.037500
	Voice 25KHz	281-284	770.762500	800.762500
	Voice 25KHz	329-332	771.062500	801.062500
	Voice 25KHz	377-380	771.362500	801.362500
	Voice 25KHz	433-436	771.712500	801.712500
	Voice 25KHz	473-476	771.962500	801.962500
	Voice 25KHz	513-516	772.212500	802.212500
	Voice 25KHz	553-556	772.462500	802.462500
	Voice 25KHz	593-596	772.712500	802.712500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	781-784	773.887500	803.887500
	Voice 25KHz	873-876	774.462500	804.462500

	Voice 25KHz	913-916	774.712500	804.712500
Ward	Voice 25KHz	45-48	769.287500	799.287500
	Voice 25KHz	97-100	769.612500	799.612500
	Voice 25KHz	161-164	770.012500	800.012500
	Voice 25KHz	217-220	770.362500	800.362500
	Voice 25KHz	257-260	770.612500	800.612500
	Voice 25KHz	297-300	770.862500	800.862500
	Voice 25KHz	353-356	771.212500	801.212500
	Voice 25KHz	409-412	771.562500	801.562500
	Voice 25KHz	477-480	771.987500	801.987500
	Voice 25KHz	517-520	772.237500	802.237500
	Voice 25KHz	561-564	772.512500	802.512500
	Voice 25KHz	601-604	772.762500	802.762500
	Voice 25KHz	661-664	773.137500	803.137500
	Voice 25KHz	705-708	773.412500	803.412500
	Voice 25KHz	745-748	773.662500	803.662500
	Voice 25KHz	837-840	774.237500	804.237500
	Voice 25KHz	905-908	774.662500	804.662500
	Voice 25KHz	945-948	774.912500	804.912500
Wells	Voice 25KHz	121-124	769.762500	799.762500
	Voice 25KHz	201-204	770.262500	800.262500
	Voice 25KHz	365-368	771.287500	801.287500
	Voice 25KHz	413-416	771.587500	801.587500
	Voice 25KHz	457-460	771.862500	801.862500
	Voice 25KHz	505-508	772.162500	802.162500
	Voice 25KHz	573-576	772.587500	802.587500
	Voice 25KHz	613-616	772.837500	802.837500
	Voice 25KHz	661-664	773.137500	803.137500
	Voice 25KHz	741-744	773.637500	803.637500
	Voice 25KHz	781-784	773.887500	803.887500
	Voice 25KHz	869-872	774.437500	804.437500
	Voice 25KHz	917-920	774.737500	804.737500
Williams	Voice 25KHz	41-44	769.262500	799.262500
	Voice 25KHz	85-88	769.537500	799.537500
	Voice 25KHz	129-132	769.812500	799.812500
	Voice 25KHz	169-172	770.062500	800.062500
	Voice 25KHz	213-216	770.337500	800.337500
	Voice 25KHz	289-292	770.812500	800.812500
	Voice 25KHz	349-352	771.187500	801.187500
	Voice 25KHz	393-396	771.462500	801.462500
	Voice 25KHz	437-440	771.737500	801.737500
	Voice 25KHz	485-488	772.037500	802.037500
	Voice 25KHz	525-528	772.287500	802.287500
	Voice 25KHz	585-588	772.662500	802.662500
	Voice 25KHz	625-628	772.912500	802.912500
	Voice 25KHz	669-672	773.187500	803.187500
	Voice 25KHz	709-712	773.437500	803.437500
	Voice 25KHz	749-752	773.687500	803.687500
	Voice 25KHz	789-792	773.937500	803.937500
	Voice 25KHz	829-832	774.187500	804.187500

	Voice 25KHz	901-904	774.637500	804.637500

State License

County	Band	FCC Channel Number	Base Frequency	Mobile Frequency	Notation
Adams	Voice 25KHz	145-148	769.912500	799.912500	
	Voice 25KHz	653-656	773.087500	803.087500	
	Voice 25KHz	809-812	774.062500	804.062500	
Barnes	Voice 25KHz	69-72	769.437500	799.437500	
	Voice 25KHz	113-116	769.712500	799.712500	
	Voice 25KHz	185-188	770.162500	800.162500	
	Voice 25KHz	313-316	770.962500	800.962500	
	Voice 25KHz	765-768	773.787500	803.787500	
Benson	Voice 25KHz	149-152	769.937500	799.937500	
	Voice 25KHz	193-196	770.212500	800.212500	
	Voice 25KHz	313-316	770.962500	800.962500	
	Voice 25KHz	645-648	773.037500	803.037500	
	Voice 25KHz	845-848	774.287500	804.287500	
Billings	Voice 25KHz	29-32	769.187500	799.187500	
	Voice 25KHz	109-112	769.687500	799.687500	
Bottineau	Voice 25KHz	105-108	769.662500	799.662500	
	Voice 25KHz	185-188	770.162500	800.162500	
	Voice 25KHz	225-228	770.412500	800.412500	
	Voice 25KHz	733-736	773.587500	803.587500	
	Voice 25KHz	925-928	774.787500	804.787500	
Bowman	Voice 25KHz	33-36	769.212500	799.212500	
	Voice 25KHz	105-108	769.662500	799.662500	
	Voice 25KHz	225-228	770.412500	800.412500	
	Voice 25KHz	265-268	770.662500	800.662500	
	Voice 25KHz	305-308	770.912500	800.912500	
	Voice 25KHz	925-928	774.787500	804.787500	
Burke	Voice 25KHz	265-268	770.662500	800.662500	
	Voice 25KHz	773-776	773.837500	803.837500	
	Voice 25KHz	893-896	774.587500	804.587500	
Burleigh	Voice 25KHz	149-152	769.937500	799.937500	
	Voice 25KHz	193-196	770.212500	800.212500	
	Voice 25KHz	233-236	770.462500	800.462500	
	Voice 25KHz	273-276	770.712500	800.712500	
	Voice 25KHz	313-316	770.962500	800.962500	
	Voice 25KHz	645-648	773.037500	803.037500	
	Voice 25KHz	685-688	773.287500	803.287500	
	Voice 25KHz	725-728	773.537500	803.537500	

	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	845-848	774.287500	804.287500
	Voice 25KHz	885-888	774.537500	804.537500
	Voice 25KHz	933-936	774.837500	804.837500
Cass	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	193-196	770.212500	800.212500
	Voice 25KHz	233-236	770.462500	800.462500
	Voice 25KHz	273-276	770.712500	800.712500
	Voice 25KHz	645-648	773.037500	803.037500
	Voice 25KHz	685-688	773.287500	803.287500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	773-776	773.837500	803.837500
	Voice 25KHz	813-816	774.087500	804.087500
	Voice 25KHz	853-856	774.337500	804.337500
	Voice 25KHz	925-928	774.787500	804.787500
Cavalier	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	229-232	770.437500	800.437500
	Voice 25KHz	273-276	770.712500	800.712500
	Voice 25KHz	773-776	773.837500	803.837500
Dickey	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	229-232	770.437500	800.437500
	Voice 25KHz	653-656	773.087500	803.087500
Divide	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	689-692	773.312500	803.312500
	Voice 25KHz	805-808	774.037500	804.037500
Dunn	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	925-928	774.787500	804.787500
Eddy	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	273-276	770.712500	800.712500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	853-856	774.337500	804.337500
Emmons	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	853-856	774.337500	804.337500
Foster	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	689-692	773.312500	803.312500
	Voice 25KHz	773-776	773.837500	803.837500
Golden Valley	Voice 25KHz	189-192	770.187500	800.187500
	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	929-932	774.812500	804.812500

Grand Forks	Voice 25KHz	109-112	769.687500	799.687500
	Voice 25KHz	189-192	770.187500	800.187500
	Voice 25KHz	269-272	770.687500	800.687500
	Voice 25KHz	309-312	770.937500	800.937500
	Voice 25KHz	693-696	773.337500	803.337500
	Voice 25KHz	769-772	773.812500	803.812500
	Voice 25KHz	849-852	774.312500	804.312500
Grant	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	265-268	770.662500	800.662500
	Voice 25KHz	773-776	773.837500	803.837500
Griggs	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	229-232	770.437500	800.437500
	Voice 25KHz	929-932	774.812500	804.812500
Hettinger	Voice 25KHz	645-648	773.037500	803.037500
	Voice 25KHz	853-856	774.337500	804.337500
	Voice 25KHz	893-896	774.587500	804.587500
Kidder	Voice 25KHz	69-72	769.437500	799.437500
	Voice 25KHz	185-188	770.162500	800.162500
La Moure	Voice 25KHz	149-152	769.937500	799.937500
	Voice 25KHz	689-692	773.312500	803.312500
	Voice 25KHz	929-932	774.812500	804.812500
Logan	Voice 25KHz	25-28	769.162500	799.162500
	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	773-776	773.837500	803.837500
McHenry	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	305-308	770.912500	800.912500
	Voice 25KHz	693-696	773.337500	803.337500
McIntosh	Voice 25KHz	189-192	770.187500	800.187500
	Voice 25KHz	269-272	770.687500	800.687500
	Voice 25KHz	309-312	770.937500	800.937500
McKenzie	Voice 25KHz	269-272	770.687500	800.687500
	Voice 25KHz	693-696	773.337500	803.337500
	Voice 25KHz	769-772	773.812500	803.812500
McLean	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	265-268	770.662500	800.662500
	Voice 25KHz	773-776	773.837500	803.837500
	Voice 25KHz	893-896	774.587500	804.587500
Mercer	Voice 25KHz	185-188	770.162500	800.162500
	Voice 25KHz	649-652	773.062500	803.062500
	Voice 25KHz	849-852	774.312500	804.312500

Morton	Voice 25KHz	33-36	769.212500	799.212500
	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	225-228	770.412500	800.412500
	Voice 25KHz	305-308	770.912500	800.912500
	Voice 25KHz	693-696	773.337500	803.337500
	Voice 25KHz	733-736	773.587500	803.587500
	Voice 25KHz	813-816	774.087500	804.087500
Mountrail	Voice 25KHz	65-68	769.412500	799.412500
	Voice 25KHz	305-308	770.912500	800.912500
	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	845-848	774.287500	804.287500
Nelson	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	885-888	774.537500	804.537500
Oliver	Voice 25KHz	25-28	769.162500	799.162500
	Voice 25KHz	65-68	769.412500	799.412500
Pembina	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	193-196	770.212500	800.212500
	Voice 25KHz	313-316	770.962500	800.962500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	845-848	774.287500	804.287500
Pierce	Voice 25KHz	269-272	770.687500	800.687500
	Voice 25KHz	769-772	773.812500	803.812500
	Voice 25KHz	813-816	774.087500	804.087500
	Voice 25KHz	889-892	774.562500	804.562500
Ramsey	Voice 25KHz	65-68	769.412500	799.412500
	Voice 25KHz	105-108	769.662500	799.662500
	Voice 25KHz	185-188	770.162500	800.162500
	Voice 25KHz	265-268	770.662500	800.662500
	Voice 25KHz	305-308	770.912500	800.912500
	Voice 25KHz	685-688	773.287500	803.287500
	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	893-896	774.587500	804.587500
Ransom	Voice 25KHz	29-32	769.187500	799.187500
	Voice 25KHz	733-736	773.587500	803.587500
	Voice 25KHz	889-892	774.562500	804.562500
Renville	Voice 25KHz	25-28	769.162500	799.162500
	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	885-888	774.537500	804.537500
Richland	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	225-228	770.412500	800.412500
	Voice 25KHz	309-312	770.937500	800.937500
	Voice 25KHz	693-696	773.337500	803.337500

	Voice 25KHz	805-808	774.037500	804.037500
Rolette	Voice 25KHz	33-36	769.212500	799.212500
	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	233-236	770.462500	800.462500
	Voice 25KHz	653-656	773.087500	803.087500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	933-936	774.837500	804.837500
Sargent	Voice 25KHz	769-772	773.812500	803.812500
	Voice 25KHz	845-848	774.287500	804.287500
Sheridan	Voice 25KHz	29-32	769.187500	799.187500
	Voice 25KHz	653-656	773.087500	803.087500
Sioux	Voice 25KHz	65-68	769.412500	799.412500
	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	889-892	774.562500	804.562500
	Voice 25KHz	929-932	774.812500	804.812500
Slope	Voice 25KHz	69-72	769.437500	799.437500
	Voice 25KHz	845-848	774.287500	804.287500
Stark	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	193-196	770.212500	800.212500
	Voice 25KHz	233-236	770.462500	800.462500
	Voice 25KHz	273-276	770.712500	800.712500
	Voice 25KHz	313-316	770.962500	800.962500
	Voice 25KHz	685-688	773.287500	803.287500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	805-808	774.037500	804.037500
	Voice 25KHz	885-888	774.537500	804.537500
	Voice 25KHz	933-936	774.837500	804.837500
Steele	Voice 25KHz	25-28	769.162500	799.162500
Stutsman	Voice 25KHz	33-36	769.212500	799.212500
	Voice 25KHz	265-268	770.662500	800.662500
	Voice 25KHz	305-308	770.912500	800.912500
	Voice 25KHz	649-652	773.062500	803.062500
	Voice 25KHz	729-732	773.562500	803.562500
	Voice 25KHz	809-812	774.062500	804.062500
	Voice 25KHz	849-852	774.312500	804.312500
	Voice 25KHz	893-896	774.587500	804.587500
Towner	Voice 25KHz	25-28	769.162500	799.162500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	853-856	774.337500	804.337500
Traill	Voice 25KHz	33-36	769.212500	799.212500
	Voice 25KHz	73-76	769.462500	799.462500

	Voice 25KHz	805-808	774.037500	804.037500
Walsh	Voice 25KHz	29-32	769.187500	799.187500
	Voice 25KHz	145-148	769.912500	799.912500
	Voice 25KHz	813-816	774.087500	804.087500
	Voice 25KHz	925-928	774.787500	804.787500
Ward	Voice 25KHz	33-36	769.212500	799.212500
	Voice 25KHz	153-156	769.962500	799.962500
	Voice 25KHz	193-196	770.212500	800.212500
	Voice 25KHz	233-236	770.462500	800.462500
	Voice 25KHz	273-276	770.712500	800.712500
	Voice 25KHz	313-316	770.962500	800.962500
	Voice 25KHz	645-648	773.037500	803.037500
	Voice 25KHz	685-688	773.287500	803.287500
	Voice 25KHz	725-728	773.537500	803.537500
	Voice 25KHz	765-768	773.787500	803.787500
	Voice 25KHz	809-812	774.062500	804.062500
	Voice 25KHz	853-856	774.337500	804.337500
	Voice 25KHz	933-936	774.837500	804.837500
Wells	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	225-228	770.412500	800.412500
	Voice 25KHz	925-928	774.787500	804.787500
Williams	Voice 25KHz	29-32	769.187500	799.187500
	Voice 25KHz	73-76	769.462500	799.462500
	Voice 25KHz	113-116	769.712500	799.712500
	Voice 25KHz	185-188	770.162500	800.162500
	Voice 25KHz	225-228	770.412500	800.412500
	Voice 25KHz	729-732	773.562500	803.562500
	Voice 25KHz	813-816	774.087500	804.087500
	Voice 25KHz	885-888	774.537500	804.537500

21.0 Appendix I – 700 MHz Interoperability/Channel Nomenclature

Table of 700 MHz Interoperability Channels

For Specific Uses/Services
*** - Mandatory**

16 CHANNEL SETS	DESCRIPTION	LABEL
Channel 23 & 24	*General Public Safety Services (secondary trunked)*	*7TAC58*
Channel 103 & 104	*General Public Safety Services (secondary trunked)*	*7TAC62*
Channel 183 & 184	*General Public Safety Services (secondary trunked)*	*7TAC66*
Channel 263 & 264	*General Public Safety Services (secondary trunked)*	*7TAC70*
Channel 39 &40	Calling Channel *	7CAL59
Channel 119 & 120	General Public Safety Service *	7TAC63
Channel 199 & 200	General Public Safety Service	7TAC67
Channel 279 & 280	Mobile Data	7DAT71
Channel 63 & 64	Emergency Medical Service	7EMS60
Channel 143 & 144	Fire Service	7FIR64
Channel 223 & 224	Law Enforcement Service	7LAW68
Channel 303 & 304	Mobile Repeater *	7MOB68
Channel 79 & 80	Emergency Medical Service	7EMS61
Channel 159 & 160	Fire Service	7FIR65
Channel 239 & 240	Law Enforcement Service	7LAW69
Channel 319 & 320	Other Public Service *	7TAC73
Channel 657 & 658	*General Public Safety Services (secondary trunked)*	*7TAC74*
Channel 737 & 738	*General Public Safety Services (secondary trunked)*	*7TAC78*
Channel 817 & 818	*General Public Safety Services (secondary trunked)*	*7TAC82*
Channel 897 & 898	*General Public Safety Services (secondary trunked)*	*7TAC86*
Channel 681 & 682	Calling Channel *	7CAL75
Channel 761 & 762	General Public Safety Service *	7TAC79
Channel 841 & 842	General Public Safety Service	7TAC83
Channel 921 & 922	Mobile Data	7DAT87
Channel 641 & 642	Emergency Medical Service	7EMS76
Channel 721 & 742	Fire Service	7FIR80
Channel 801 & 802	Law Enforcement Service	7LAW84
Channel 881 & 882	Mobile Repeater *	7MOB88
Channel 697 & 698	Emergency Medical Service	7EMS77
Channel 777 & 778	Fire Services	7FIR81
Channel 857 & 858	Law Enforcement Service	7LAW85
Channel 937 & 938	Other Public Services*	7TAC89

22.0 Appendix J – Inter-Regional Coordination Procedures and Resolution of Disputes

Inter-Regional Procedures for Resolution of Disputes
That May Arise Under FCC Approved 700 MHz Plans

I. Introduction:

This is a mutually agreed upon Inter-Regional Procedures for Resolution of Disputes Agreement by and between the Region 32 700 MHz Planning Committee and the adjacent Region 38, Region 22, and Region 25 700 MHz Planning Committee.

II. Inter-Regional Coordination:

The following are the specific procedures for inter-regional coordination which are agreed upon by Region 32 and Region 38, Region 22, and Region 25 and which will be used by the Regions for frequency coordination:

a. An application filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first serve basis.
b. Applications by eligible entities are accepted.
c. An Application filing window (if this procedure is being used) is closed after an appropriate time interval.
d. Intra-regional review and coordination takes place, including a technical review resulting in assignment of channels.
e. After intra-regional review, a copy of those frequency-specific applications requiring adjacent Regional approval, including a definition statement of proposed service area, shall then be forwarded to the adjacent Region(s) for review.* This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database or by e-mail.
f. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent via the CAPRAD database or by e-mail to the initiating Regional chairperson within thirty (30) calendar days.

III. Dispute Resolution:

a. If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence and respond within ten (10) calendar days via e-mail. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region, a working group comprised of representatives of the two regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall report its findings within thirty (30) calendar days to the Regional chair persons e-mail (CAPRAD database). Findings may include but not be limited to:

(i) Unconditional concurrence;

(ii) Conditional concurrence contingent upon modification of the applicant technical parameters; or,

(iii) Partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent interference free protection to existing licenses within the adjacent Region;

*If an applicant's proposed service area or interference extends into an adjacent Public Safety Region(s), the application must be approved by the affected Region(s). Service area shall normally be defined as the area included within the geographical boundary of the applicant plus three (3) miles. Interference contour shall normally be defined as a 5 dBu co-channel contour or a 60 dBu adjacent channel.

If the Inter-Regional Working Group cannot resolve the dispute, the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC). Each Region involved in the dispute

shall include a detailed explanation of its position including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

IV. Contingencies:

a. Where adjacent Region concurrence has been secured and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix, the initiating Region may advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.
b. Where adjacent Region concurrences have been secured and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, the initiating Region shall file with the Commission a Petition to amend their current Regional Plan's frequency matrix reflecting the new channel assignments with a copy of the Petition sent to the adjacent Regional chairperson(s).

V. Notification:

a. Upon Commission issuance of an Order adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the Order to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

VI. Signature:

Region 32 and Region 38, Region 22, and Region 25 mutually agree to follow the inter-regional dispute resolution procedures stated in this Agreement.

If the Inter-Regional Working Group cannot resolve the dispute, the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC). Each Region involved in the dispute shall include a detailed explanation of its position including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

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V. Notification:

a. Upon Commission issuance of an Order adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the Order to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

VI. Signature:

Region 25 and Region 25 mutually agree to follow the inter-regional dispute resolution procedures stated in this Agreement.

10/31/2011
BY: Scott Bradford, REGION 25 CHAIRPERSON **Date**

10/31/11
BY: Mike Lynk, REGION 12 CHAIRPERSON **Date**

If the Inter-Regional Working Group cannot resolve the dispute, the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC). Each Region involved in the dispute shall include a detailed explanation of its position including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

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a. Where adjacent Region concurrence has been secured and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix, the initiating Region may advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.
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V. Notification:

a. Upon Commission issuance of an Order adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the Order to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

VI. Signature:

Region 32 and Region 38 mutually agree to follow the inter-regional dispute resolution procedures stated in this Agreement.

BY: Todd Dravland, REGION 38 CHAIRPERSON — **Date** 6/5/2012

BY: Mike Lynk, REGION 32 CHAIRPERSON — **Date** 6/15/12

If the Inter-Regional Working Group cannot resolve the dispute, the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC). Each Region involved in the dispute shall include a detailed explanation of its position including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

IV. Contingencies:

a. Where adjacent Region concurrence has been secured and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix, the initiating Region may advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.
b. Where adjacent Region concurrences have been secured and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, the initiating Region shall file with the Commission a Petition to amend their current Regional Plan's frequency matrix reflecting the new channel assignments with a copy of the Petition sent to the adjacent Regional chairperson(s).

V. Notification:

a. Upon Commission issuance of an Order adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the Order to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

VI. Signature:

Region 32 and Region 22 mutually agree to follow the inter-regional dispute resolution procedures stated in this Agreement.

01/03/2012

BY: Abley Brandon, REGION 22 CHAIRPERSON **Date**

1/10/12

BY: Mike Lynk, REGION 32 CHAIRPERSON **Date**

23.0 Appendix K – Simplified 700 MHz Pre-Assignment Rules and Recommendations

The link below is the National Coordination Committee (NCC) 700 MHz Pre-Assignment Rules and Recommendations which were developed to outline a recommended process for regional coordination of the initial block of 700 MHz channels by the region. This language can be beneficial to a region when determining criteria for coordination of channels in its region as envisioned in the NCC process but regions are not bound to the values or engineering practices identified herein but are able to identify the methods best suited to effectively coordinate channels in their region. The NRPC recommends regional planning committee personnel review the entire document when determining the best coordination practices for their region.

http://caprad.org/NlectcRm/Plans/Docs/x_Appendix_K_V2_0.pdf

Simplified 700 MHz Pre-assignment Rules Recommendation

Introduction

A process for doing the initial block assignments of 700 MHz channels before details of actual system deployments is required. In this initial phase, there is little actual knowledge of what specific equipment is to be deployed and where the sites will be. As a result, a high level simplified method is proposed to establish guidelines for frequency coordination. When actual systems are deployed, additional details will be known and the system designers will be required to select specific sites and supporting hardware to control interference.

Overview

Assignments will be based on a defined service area of each applicant. For Public Safety entities this will normally be a geographically defined area such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area.

For co-channel assignments, the **40 dBμ** contour will be allowed to extend beyond the defined service area by 3 to 5 miles, depending on the type of environment, urban, suburban or low density. The interfering co-channel **5 dBμ** will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50-50).

For **adjacent and alternate channels, the interfering channels 60 dBμ** will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50,50).

Discussion

The FCC limits the maximum field strength to 40 dB relative to 1μV/m (customarily denoted as 40 dBμ). It is assumed that this limitation will be applied similarly to the way it is applied in the 821-824/866/869 MHz band. That is, a 40 dBμ field strength can be deployed up to a defined distance from the edge of the service area, based on the size of the service area or type of applicant, i.e. city, county or statewide system. This is important as the potential for interference from CMRS infrastructure demands that public safety systems have adequate margins for reliability in the presence of interference. The value of 40 dBμ corresponds to a signal of -92.7 dBm, received by a half-wavelength dipole (λ/2) antenna. The thermal noise floor for a 6.25 kHz receiver would be in the range of -126 dBm, so there is a margin of approximately 33 dB available for "noise limited" reliability. Figure 1

shows show the various interfering sources and how they accumulate to form a composite noise floor that can be used to determine the "reliability" or probability of achieving the desired performance in the presence of various interfering sources with differing characteristics.

Allowing for a 3 dB reduction in the available margin due to CMRS OOBE noise lowers the reliability and/or the channel performance of Public Safety systems. TIA TR8 made this allowance during the meetings in Mesa, AZ, January 2001. In addition, there are various channel bandwidths with different performance criteria and unknown adjacent and alternate channel assignments need to be accounted for. The co-channel and adjacent/alternate sources are shown in the right hand side of Figure 1. There would be a single co-channel source, but potentially several adjacent or alternate channel sources involved.

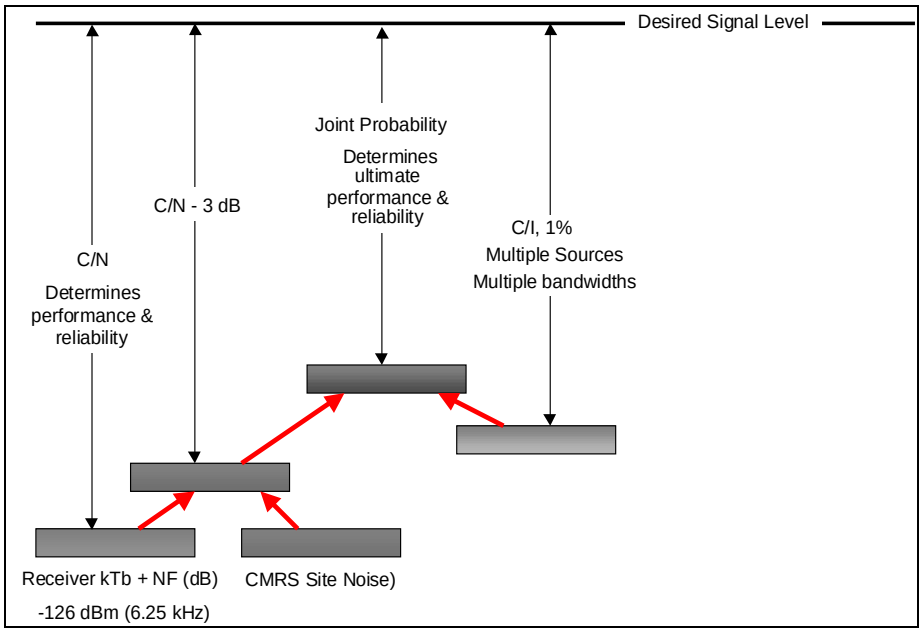

Figure 1 - Interfering Sources Create A "Noise" Level Influencing Reliability

It is recommended that co-channel assignments limit the C/I at the edge (worst case mile) be sufficient to limit that interference to <1%. A C/I ratio of 26.4 dB plus the required capture value required to achieve this goal. . A 17 - 20 dB C/N is required to achieve channel performance. Table 1 shows estimated performance considering the 3 dB noise floor rise at the 40 dBµ signal level. Performance varies due to the different Cf/N requirements of the different modulations and channel bandwidths. These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

Comparison of Joint Reliability for various configurations				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver ENBW (kHz)	6	6	9	18
Noise Figure(10 dB)	10	10	10	10
Receiver Noise Floor (dBm)	-126.22	-126.22	-124.46	-121.45
Rise in Noise Floor (dB)	3.00	3.00	3.00	3.00
New Receiver Noise Floor (dB)	-123.22	-123.22	-121.46	-118.45
40 dBu = -92.7 dBm	-92.7	-92.7	-92.7	-92.7
Receiver Capture (dB)	10.0	10.0	10.0	10.0
Noise Margin (dB)	30.52	30.52	28.76	25.75
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
C/N Margin (dB)	**13.52**	**13.52**	**10.76**	**5.75**
Standard deviation (8 dB)	8.0	8.0	8.0	8.0
Z	1.690	1.690	1.345	0.718
Noise Reliability (%)	**95.45%**	**95.45%**	**91.06%**	**76.37%**
C/I for <1% prob of capture	36.4	36.4	36.4	36.4
I (dBu)	3.7	3.7	3.7	3.7
I (dBm)	-129.0	-129.0	-129.0	-129.0
Joint Probability (C & I)	**94.2%**	**94.2%**	**90.4%**	**75.8%**
40 dBu = -92.7 dBm @ 770 MHz				

Table 1 Joint Probability For Project 25, 700 MHz Equipment Configurations.

To analyze the impact of requiring portable in building coverage, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Then the impact of simulcast is included to show that the 40 dBμ must be able to fall outside the edge of the service area. From the analysis, recommendations of how far the 40 dBμ extensions should be allowed to occur are made.

Table 2 Estimates urban coverage where simulcast is required to achieve the desired portable in building coverage. Several assumptions are required to use this estimate.

- Distance from the location to each site. Equal distance is assumed.
- CMRS noise is reduced when entering buildings. This is not a guarantee as the type of deployments is unknown. It is possible that CMRS units may have transmitters inside buildings. This could be potentially a large contributor unless the CMRS OOBE is suppressed to TIA's most recent recommendation and the "site isolation" is maintained at 65 dB minimum.
- The 40 dBμ is allowed to extend beyond the edge of the service area boundary.
- Other configurations may be deployed utilizing additional sites, lower tower heights, lower ERP and shorter site separations.
-

Estimated Performance at 2.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-72.7	-72.7	-72.7	-72.7
Margin (dB)	53.50	53.50	51.80	45.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	20	20	20	20
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275

Single Site Noise Reliability (%)	85.60%	85.60%	76.58%	39.17%
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 2, Estimated Performance From Site(s) 2.5 Miles From Typical Urban Buildings.

Table 2 shows for the example case of 2.5 miles that simulcast is required to achieve public safety levels of reliability. The difference in performance margin requirements would require more sites and closer site to site separation for wider bandwidth channels.

Figures 2 and 3 show how the configurations would potentially be deployed for a typical site with 240 Watts ERP. This is based on:

- 75 Watt transmitter, 18.75 dBW
- 200 foot tower
- 10 dBd 180 degree sector antenna +10.0 dBd
- 5 dB of cable/filter loss. - 5.0 dB

23.75 dBW ≈ 240 Watts (ERPd)

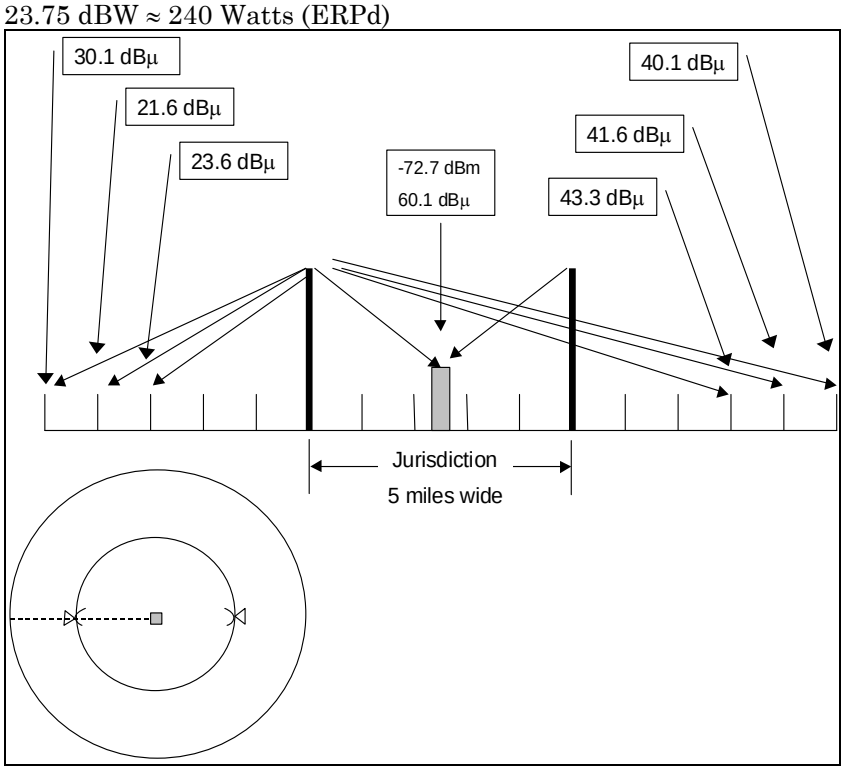

Figure 2 - Field Strength From Left Most Site.

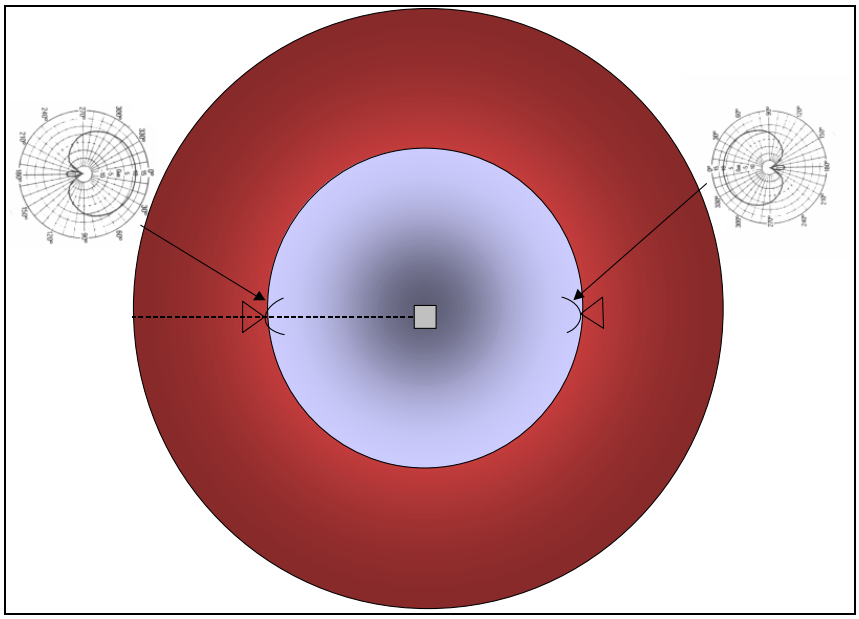

Figure 3 - Antenna Configuration Required To Limit Field Strength Off "Backside"

Figure 2 is for an urbanized area with a jurisdiction of a 5 mile circle. To provide the necessary coverage to portables in buildings at the center of the jurisdiction requires that the sites be placed along the edge of the service area utilizing direction antennas opriented toward the center of the service area (Figure 3). In this case, at 5 miles beyond the edge of the service area, the sites would produce a composite field strength of approximately 40 dBµ. Since one site is over 10 dB dominant, the contribution from the other site is not considered. The control of the field strength behind the site relies on a 20 dB antenna with a Front to Back Ratio (F/B) specification as shown in Figure 3. This performance may be optomistic due to back scatter off local obstructions in urbanized areas. However, use of antennas on the sides of buildings can assist in achieving better F/B ratios and the initial planning is not precise enough to prohibit using the full 20 dB.

The use of a single site at the center of the service area is not normally practical. To provide the necessary signal strength at the edge of the service area would produce a field strength 5 miles beyond in excess of 44 dBµ. However, if the high loss buildings were concentrated at the service area's center, then potentially a single site could be deployed, assuming that the building loss sufficiently decreases near the edge of the service area allowing a reduction in ERP to achieve the desired reliability.

Downtilting of antennas to control the 40 dBµ is not practical as the difference in angular discrimination from a 200 foot tall tower at 2.5 miles and 10 miles is approximately 0.6 degrees.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBm can be determined from Table Z. Recommendations are made in Table 6.

Estimated Performance at 3.5 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-77.7	-77.7	-77.7	-77.7
Margin (dB)	48.50	48.50	46.80	40.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	15	15	15	15
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	**85.60%**	**85.60%**	**76.58%**	**39.17%**
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 3 - Lower Loss Buildings, 3.5 Mile From Site(s)

Estimated Performance at 5.0 miles from each site				
Channel Bandwidth	6.25 kHz	12.5 kHz	12.5 kHz	25.0 kHz
Receiver Noise Floor (dBm)	-126.20	-126.20	-124.50	-118.50
Signal at 2.5 miles (dBm)	-82.7	-82.7	-82.7	-82.7
Margin (dB)	43.50	43.50	41.80	35.80
C/N Required for DAQ = 3	17.0	17.0	18.0	20.0
Building Loss (dB)	10	10	10	10
Antenna Loss (dBd)	8	8	8	8
Reliability Margin	8.50	8.50	5.80	-2.20
Z	1.0625	1.0625	0.725	-0.275
Single Site Noise Reliability (%)	**85.60%**	**85.60%**	**76.58%**	**39.17%**
Simulcast with 2 sites	97.93%	97.93%	94.51%	62.99%
Simulcast with 3 sites	99.70%	99.70%	98.71%	77.49%
Simulcast with 4 sites	99.96%	99.96%	99.70%	86.30%

Table 4 - Low Loss Buildings, 5.0 Miles From Site(s)

Note that the receive signals were adjusted to offset the lowered building penetration loss. This produces the same numerical reliability results, but allows increasing the site to building separation and this in turn lowers the magnitude of the "overshoot" across the service area.

Table 5 shows the field strength for a direct path and for a path reduced by a 20 dB F/B antenna. This allows the analysis to be simplified for the specific example being discussed.

Overshoot Distance (mi)	Field Strength (dBμ)	20 dB F/B (dBμ)
1	73.3	53.3
2	63.3	43.3
2.5	60.1	40.1
3	57.5	37.5
4	53.3	33.5
5	50.1	30.1
…	…	
10	40.1	
11	38.4	
12	37.5	

13	36.0	
14	34.5	
15	33.0	

Table 5 - Field Strength Vs. Distance From Site

This allows the overshoot to be 11 miles so the extension of the 40 dBm can be 4 miles for surbanized territory . For the more rural territory, the limit is the signal strength off the back of the antenna. So the result is that for various types of urbanized areas the offset of the 40 dBm should be:

Type of Area	Extension (mi.)
Urban (20 dB Buildings)	5
Suburban (15 dB Buildings)	4
Rural (10 dB Buildings)	3

Table 6 - Recommended Extension Distance Of 40 Dbμ Field Strength

The 40 dBμ can then be constructed based on the defined service area without having to perform an actual prediction. Since the 40 dBμ is beyond the edge of the service area, some relaxation in the level of I is reasonable. Therefore a 35 dB ration is recommended and is consistent with what is currently being licensed in the 821-824/866-869 MHz Public Safety band.

Co-Channel Recommendation

- Allow the constructed 40 dBμ (50,50) to extend beyond the edge of the defined service area by the distance indicated in Table 6.
- Allow the Interfering 5 dBμ (50,50) to intercept but not overlap the 40 dBμ contour.
-

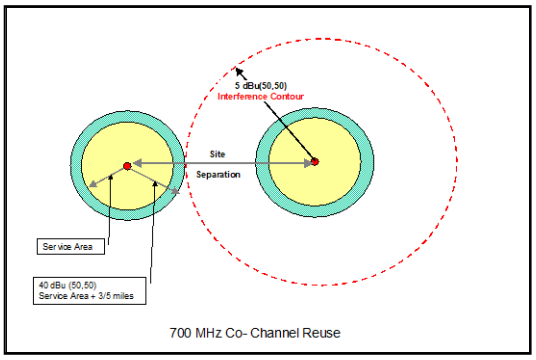

Figure 4 - Co-Channel Reuse Criterion

Adjacent and Alternate Channel Considerations

Adjacent and alternate channels are treated as being noise sources that alter the composite noise floor of a victim receiver. Using the 47 CFR § 90.543 values of ACCP can facilitate the coordination of adjacent and alternate channels. The C/I requirements for <1% interference can be reduced by the value of ACCPR. For example to achieve an X dB C/I for the adjacent channel that is -40 dBc a C/I of [X-40] dB is required. Where the alternate channel ACP value is -60 dBc, then the C/I = [X-60] dB is the goal for assignment(s). There is a compounding of interference energy, as there are numerous sources, i.e. co channel, adjacent channels and alternate channels plus the noise from CMRS OOBE.

There is insufficient information in 47 CFR § 90.543 to include the actual receiver performance. Receivers typically have "skirts" that allow energy outside the bandwidth of interest to be received. In addition, the FCC defines ACCP differently than does the TIA. The term used by the FCC is the same as the TIA definition of ACP. The subtle difference is that ACCP defines the energy intercepted by a defined receiver filter. ACP defines the energy in a measured bandwidth that is typically wider than the receiver. As a result, the FCC values are optimistic at very close spacing and somewhat pessimistic at wider spacings, as the typical receiver filter is less than the channel bandwidth.

In addition, as a channel bandwidth is increased, the total noise is allowed to rise as it is initially defined in a 6.25 kHz channel bandwidth. However, the effect is diminished at very close spacings as the noise is rapidly falling off. At greater spacings, the noise is essentially flat and the receiver's filter limits the noise to the specified 3 dB rise in the thermal noise floor.

Digital receivers tend to be less tolerant to interference than analog. Therefore a 3 dB reduction in the C/(I+N) can reduce a DAQ = 3 to a DAQ = 2 which is threshold to complete receiver muting. Therefore at least 17 dB plus the margin for keeping the interference below 1% probability requires a total margin of 43.4 dB. However, this margin would be at the edge of the service area and the 40 dBμ is allowed to extend past the edge of the service area.

Frequency drift is controlled by the FCC requirement for 0.4-ppm stability when locked. This equates to approximately a 1 dB standard deviation, which is negligible when associated with the recommended initial lognormal standard deviation of 8 dB and can be ignored.

Project 25 requires that a transceiver receiver have an ACIPR of 60 dB. This implies that an ACCPR ≥ 65 dB will exist for a "companion receiver". A companion receiver is one that is designed for the specific modulation. At this time the highest likelihood is that receivers will be deploying the following receiver bandwidths at the following channel bandwidths.

Estimated Receiver Parameters	
Channel Bandwidth	Receiver Bandwidth
6.25 kHz	5.5 kHz
12.5 kHz	5.5 or 9 kHz
25 kHz	18.0 kHz

Table 7 - Estimated Receiver Parameters

Based on 47 CFR ¶ 90.543 and the P25 requirement for an ACCPR ≥ 65 dB into a 6.0 kHz channel bandwidth and leaving room for a migration from Phase 1 to Phase 2, allows for making the simplifying assumption that 65 dB ACCPR is available for both adjacent 25 kHz block.

Base initial (presorts) on 25 kHz channels. This provides the maximum flexibility by using 65 dB ACCPR for all but one possible combination of 6.25 kHz channels within the 25 kHz allotment.

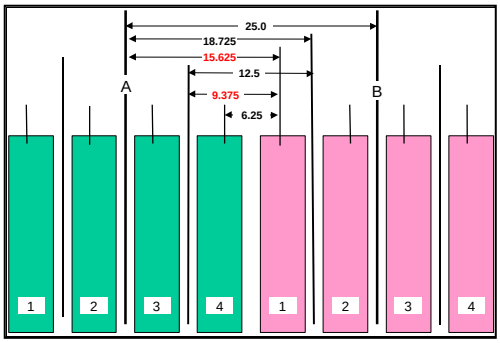

Figure 5, Potential Frequency Separations

Case	ACCPR
25 kHz	65 dB
18.725 kHz	65 dB
15.625 kHz	>40 dB
12.5 kHz	65 dB
9.375 kHz	>40 dB
6.25 kHz	65 dB

Table 8 - ACCPR Values For Potential Frequency Separations
All cases meet or exceed the FCC requirement. The most troublesome cases occur where the wider bandwidths are working against a Phase 2 narrowband 6.25 kHz channel. If system designers keep this consideration in mind and move the edge 6.25 kHz channels inward on their own systems, then a constant value of 65 dB ACCPR can be applied across all 25 kHz channels regardless of what is eventually deployed.

For other blocks, it must be assumed that transmitter filtering in addition to transmitter performance improvements with greater frequency separation will further reduce the ACCPR.

Therefore it is recommended that a consistent value of 65 dB ACCPR be used for coordinating adjacent 25 kHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the "I" contour to be approximately 20 dB above the 40 dBμ contour, 60 dBμ.

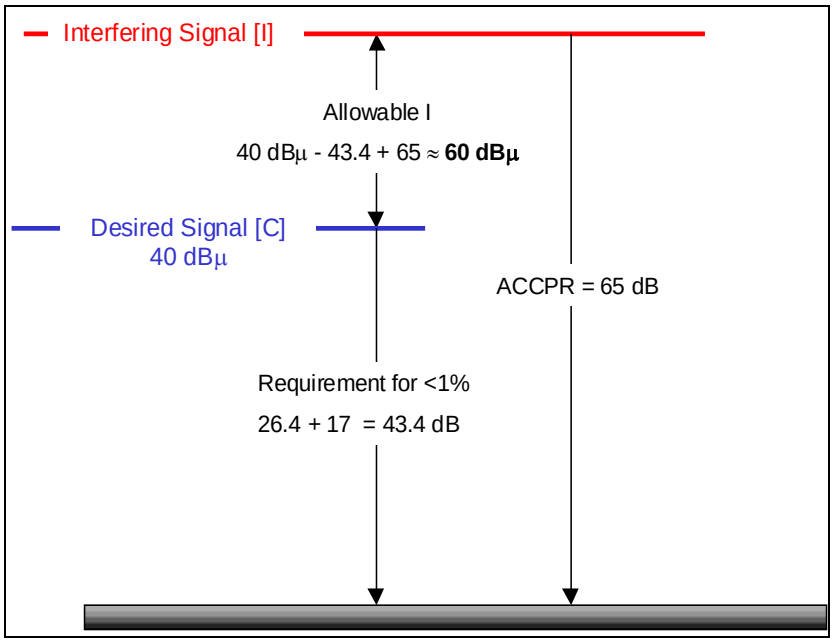

Figure 6 - Adjusted Adjacent 25 kHz Channel Interfering Contour Value

An adjacent Interfering (25 kHz) channel shall be allowed to have its 60 dBμ (50,50) contour touch but not overlap the 40 dBμ (50,50) contour of a system being evaluated. Evaluations should be made in both directions.

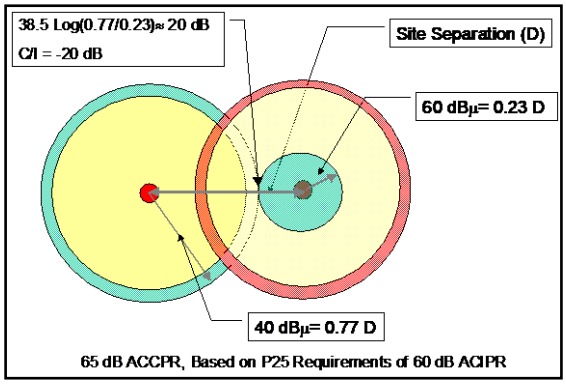

Figure 7 - Example Of Adjacent/Alternate Overlap Criterion

This simple method is only adequate for presorting large blocks to potential entities. A more detailed analysis should be executed in the actual design phase to take all the issues into consideration. Additional factors that should be considered include:

- Degree of Service Area Overlap
- Different size of Service Areas
- Different ERPs and HAATs
- Actual Terrain and Land Usage
- Differing User Reliability Requirements
- Migration from Project 25 Phase 1 to Phase 2
- Actual ACCP
- Balanced Systems
- Mobiles vs. Portables
- Use of voting
- Use of simulcast
- Radio specifications
- Simplex Operation
- Future unidentified requirements.

Special attention needs to be paid to the use of simplex operation. In this case, an interferer can be on an offset adjacent channel and in extremely close proximity to the victim receiver. This is especially critical in public safety where simplex operations are frequently used at a fire scene or during police operation. This type operation is also quite common in the lower frequency bands. In those cases, evaluation of base to base as well as mobile to mobile interference should be considered and evaluated.

Carrier to Interference Requirements

There are two different ways that Interference is considered.

- Co Channel
- Adjacent and Alternate Channels

Both involve using a C/I ratio. The C/I ratio requires a probability be assigned. For example, a 10% Interference is specified, the C/I implies 90% probability of successfully achieving the desired ratio. At 1% interference, means that there is a 99% probability of achieving the desired C/I.

(1)

This can also be written in a form using the standard deviate unit (Z). In this case the Z for the desired probability of achieving the C/I is entered. For example, for a 90% probability of achieving the necessary C/I, $Z = 1.28$.

(2)

The most common requirements for several typical lognormal standard deviations (σ) are included in the following table based on Equation (2).

Location Standard Deviation (σ) dB	5.6	6.5	8	10
Probability %				
10%	10.14 dB	11.77 dB	14.48 dB	18.10 dB
5%	13.07 dB	15.17 dB	18.67 dB	23.33 dB
4%	13.86 dB	16.09 dB	19.81 dB	24.76 dB
3%	14.90 dB	17.29 dB	21.28 dB	26.20 dB
2%	16.27 dB	18.88 dB	23.24 dB	29.04 dB
1%	18.45 dB	21.42 dB	26.36 dB	32.95 dB

Table A1 - Probability Of Not Achieving C/I For Various Location Lognormal Standard Deviations

These various relationships are shown in Figure A1, a continuous plot of equation(s) 1 and 2.

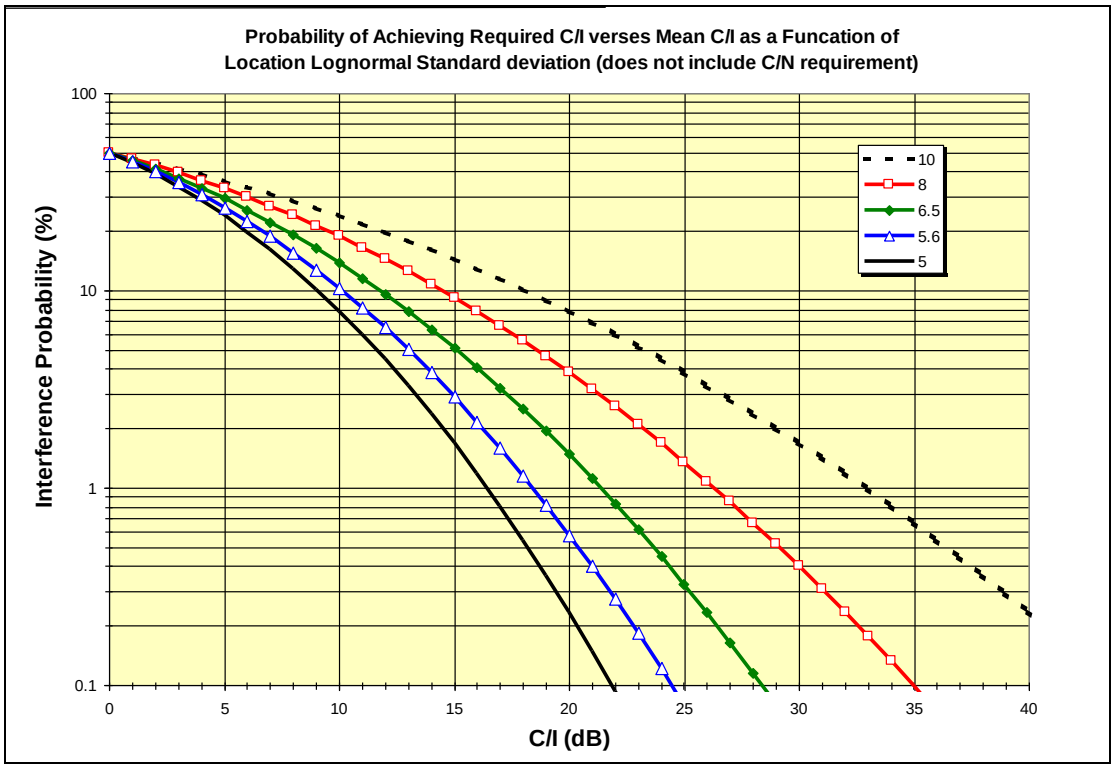

Figure A1, Probability Of Achieving Required C/I As A Function Of Location Standard Deviation

For co-channel the margin needs to include the "capture" requirement. When this is done, then a 1% probability of co channel interference can be rephrased to mean, there is a 99% probability that the "capture ratio" will be achieved. The capture ratio varies with the type of modulation. Older analog equipment has a capture ratio of approximately 7 dB. Project 25 FDMA is specified at 9 dB. Figure A1 shows the C/I requirement without including the capture requirement.

The 8 dB value for lognormal location standard deviation is reasonable when little information is available. Later when a detailed design is required, additional details and high-resolution terrain and land usage databases will allow a lower value to be used. The TIA recommended value is 5.6 dB. This provides the additional flexibility necessary to complete the design

To determine the desired probability that both the C/N and C/I will be achieved requires that a joint probability be determined. Figure A2 shows the effects of a family of various levels of C/N reliability and the joint probability (Y-axis) in the presence of various probabilities of Interference. Note that at 99% reliability with 1% interference (X-axis) that the reduction is nearly the difference. This is because the very high noise reliability is degraded by the interference, as there is little probability that the noise criterion will not be satisfied. At 90%, the 1% interference has a greater likelihood that it will occur simultaneously when the noise criterion not being met, resulting is a less degradation of the 90%

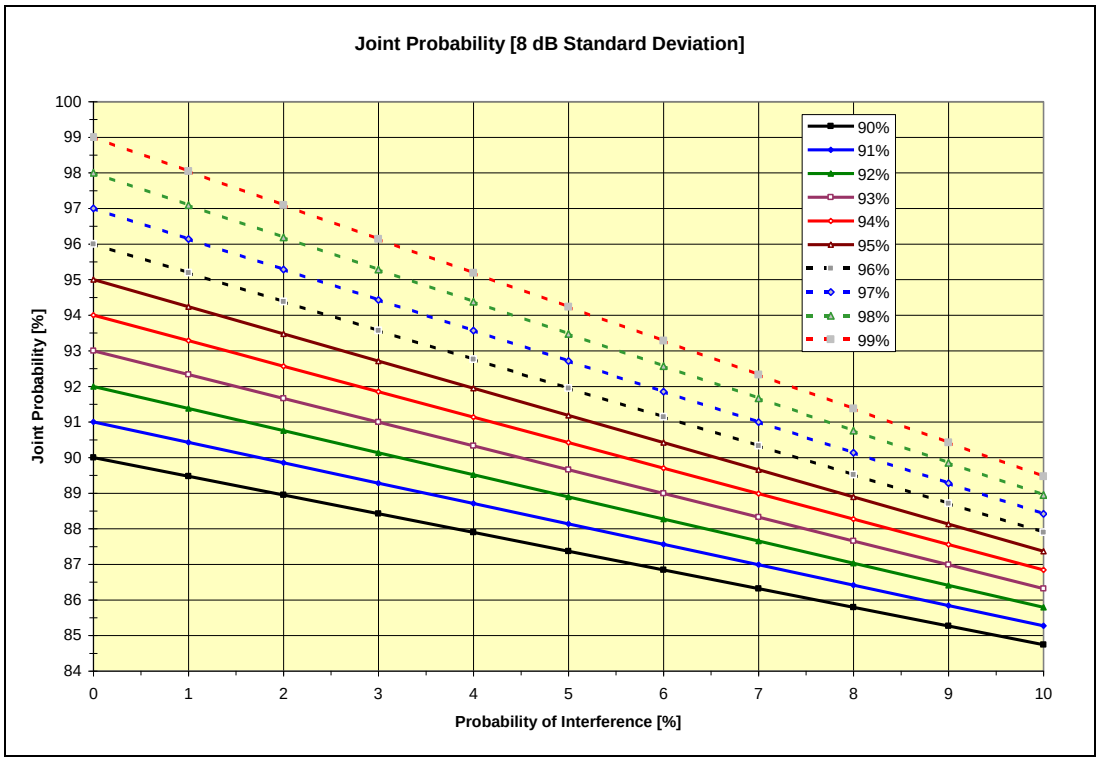

Figure A2 - Effect Of Joint Probability On The Composite Probability

For adjacent and alternate channels, the channel performance requirement must be added to the C/I ratio. When this is applied, then a 1% probability of adjacent/alternate channel interference can be rephrased to mean, there is a 99% probability that the "channel performance ratio" will be achieved.

24.0 Appendix L – US/Canada Agreement

Title 47: Telecommunication
PART 90—PRIVATE LAND MOBILE RADIO SERVICES
Subpart R—Regulations Governing the Licensing and Use of Frequencies in the 763-775 and 793-805 MHz Bands

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§90.533 Transmitting sites near the U.S./Canada or U.S./Mexico border.

This section applies to each license to operate one or more public safety transmitters in the 758-775 MHz and 788-805 MHz bands, at a location or locations North of Line A (see §90.7) or within 120 kilometers (75 miles) of the U.S.-Mexico border, until such time as agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, become effective governing border area non-broadcast use of these bands. Public safety licenses are granted subject to the following conditions:

(a) Public safety transmitters operating in the 758-775 MHz and 788-805 MHz bands must conform to the limitations on interference to Canadian television stations contained in agreement(s) between the United States and Canada for use of television channels in the border area.

(b) Public safety facilities must accept any interference that may be caused by operations of UHF television broadcast transmitters in Canada and Mexico.

(c) Conditions may be added during the term of the license, if required by the terms of international agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, regarding non-broadcast use of the 758-775 MHz and 788-805 MHz bands.

[43 FR 54791, Nov. 22, 1978, as amended at 67 FR 76700, Dec. 13, 2002; 72 FR 48861, Aug. 24, 2007; 79 FR 600, Jan. 6, 2014]

ARRANGEMENT Q

SHARING ARRANGEMENT BETWEEN THE DEPARTMENT OF INDUSTRY OF CANADA AND THE FEDERAL COMMUNICATIONS COMMISSION OF THE UNITED STATES OF AMERICA CONCERNING THE USE OF THE FREQUENCY BANDS 768-776 MHz AND 798-806 MHz BY THE LAND MOBILE SERVICE ALONG THE CANADA-UNITED STATES BORDER

The Department of Industry of Canada (Industry Canada), and the Federal Communications Commission of the United States of America (FCC), hereinafter referred to as the "Agencies".

Have agreed to the following:

1. Scope

1.1. This Arrangement is made pursuant to the *Exchange of Notes (October 24, 1962) between the Government of Canada and the Government of the United States of America concerning the coordination and use of radio frequencies above thirty megacycles per second*, with annex, completed at Ottawa October 24, 1962, as amended, and covers the sharing and coordination of frequency spectrum for the establishment and operation of land mobile radio services operating in the bands 768-776 MHz and 798-806 MHz along the Canada-United States border.

1.2. Aeronautical and maritime mobile services in this band are not covered by this Arrangement but may be subject to special coordination procedures on a case-by-case basis at the request of either agency prior to their introduction.

1.3. The Agencies may initiate and implement special coordination procedures allowing proposed stations to operate in a manner exceeding the technical conditions stated in this Arrangement within the sharing zones where the affected licensees agree to such conditions. Such special coordination may be initiated by either Agency through an exchange of correspondence and the results shall be approved by both Agencies.

1.4. This Arrangement is subject to review at any time at the request of either Agency, the U.S. Department of State or the Department of Foreign Affairs and International Trade of Canada.

2. Sharing and Protection Zones

The Agencies shall use the following definitions of Sharing Zones, Protection Zones and Sectors when interpreting this Arrangement:

2.1. **Sharing Zone I**

This Sharing Zone is the area adjacent to the United States-Canada border East of

longitude 121° 30' W. and extending a distance of 100 km within either country. However, within Sharing Zone I the following special geographic areas are recognized:

a) In the Great Lakes area there are significant land areas that are within 100 km of the international border between the United States and Canada, but further than 100 km from any land mass of the other country. These areas contain several significant population centers that would benefit from additional spectrum if the lake shores were considered for purposes of sharing. With this in mind, the following cities shall be considered as falling outside of Sharing Zone I but inside the Protection Zone as defined in section 2.4 below: in the United States, the cities of Akron, Ohio; Youngstown, Ohio; and Syracuse, New York; and in Canada, the cities of Kitchener-Waterloo, Ontario; Peterborough, Ontario, and London, Ontario. These cities are defined in Annex B, Table B4 as an area with the given center coordinates and encompassing a circle of 30 km radius.

b) Sector 1 and Sector 2, as defined in Section 4 below, are recognized as special geographic areas within Sharing Zone I.

2.2. Sharing Zone II

This Sharing Zone is the area adjacent to the United States-Canada border between 121° 30' and 127° W. longitude and extending a distance of 140 km within either country.

2.3. Sharing Zone III

This Sharing Zone is the area adjacent to the Alaska-British Columbia/Yukon Territory border and extending a distance of 100 km within either country.

2.4. Protection Zones

The Protection Zones are the areas adjacent to Sharing Zones I and III and extending from 100 km to 140 km away from the United States-Canada border within both countries as well as the areas defined in Annex B, Table B4.

3. General Sharing Arrangement

3.1. Channeling Arrangements

Within the Sharing Zones and Protection Zones, the Agencies shall use the spectrum on the basis of a paired frequency channeling plan with base station transmitters in the frequency band 768-775 MHz and mobile station transmitters in the frequency band 798-805 MHz. In the bands 775-776 MHz and 805-806 MHz, the Agencies may use unpaired or paired frequencies. A mobile station may also transmit on any frequency assigned to its associated base station. Base station to base station transmissions may occur in either frequency band 768-776 MHz or frequency band 798-806 MHz.[1]

[1] For purposes of this arrangement, base to base transmissions include fixed (repeater) and fixed (control) operations.

The channels and blocks referred to in this Arrangement are defined in Annex A.

3.2. **Distribution/Allotment of Frequencies**

The frequency bands covered by this Arrangement shall be shared along the border, as indicated below. Each Agency may use its allotted portions of spectrum, subject to not causing harmful interference to assignments beyond the allotted frequency band edges and subject to the technical limits described in section 5.

3.2.1. Canada

In the Sharing Zones, except as specified in section 4, Canada has primary use of the channels and blocks listed in Annex A, Tables 1a and 1b in the frequency bands 768 to 776 MHz and 798 to 806 MHz.

3.2.2. United States

3.2.3. In the Sharing Zones, except as specified in section 4, the United States has primary use of the channels and blocks listed in Annex A, Tables 2a and 2b in the frequency bands 768 to 776 MHz and 798 to 806 MHz.

3.2.4. Shared Channels

(a) Interoperability Channels

The following paired channels shall be available as public safety interoperability channels.[2] These channels shall be available for each Agency's use in all areas. Usage of these channels in the sharing zones may be locally coordinated in accordance with the interoperability requirements of the Canadian and U.S. licensees.

Base/Mobile Interoperability Channels		
(base/mobile)	**To**	**(base/mobile)**
23 / 983	To	24 / 984
39 / 999	To	40 / 1000
63 / 1023	To	64 / 1024
79 / 1039	To	80 / 1040
103 / 1063	To	104 / 1064
119 / 1079	To	120 / 1080
143 / 1103	To	144 / 1104
159 / 1119	To	160 / 1120
183 / 1143	To	184 / 1144
199 / 1159	To	200 / 1160

[2] Interoperability channels shall be used only for coordination of tactical communications between different public safety agencies, within a single public safety agency, or for other similar emergency communications.

Base/Mobile Interoperability Channels		
(base/mobile)	To	(base/mobile)
223 / 1183	To	224 / 1184
239 / 1199	To	240 / 1200
263 / 1223	To	264 / 1224
279 / 1239	To	280 / 1240
303 / 1263	To	304 / 1264
319 / 1279	To	320 / 1280
641 / 1601	To	642 / 1602
657 / 1617	To	658 / 1618
681 /1641	To	682 / 1642
697 / 1657	To	698 / 1658
721 / 1681	To	722 / 1682
737 / 1697	To	738 / 1698
761 / 1721	To	762 / 1722
777 / 1737	To	778 / 1738
801 / 1761	To	802 / 1762
817 / 1777	To	818 / 1778
841 / 1801	To	842 / 1802
857 / 1817	To	858 / 1818
881 / 1841	To	882 / 1842
897 / 1857	To	898 / 1858
921 / 1881	To	922 / 1882
937 / 1897	To	938 / 1898

(b) Low Power Channels

The following channels shall be available as narrowband low power channels: 1 to 12, 949 to 960, 961 to 972, and 1909 to 1920. These channels shall be available for mobile operations only. No fixed station shall be allowed on these channels. These channels shall be available for each Agency's use on an unprotected basis. Operation on these low power channels shall be limited to a maximum ERP of 2 watts.

3.2.5. Protection Zones

In the Protection Zones, each Agency has primary use of all the channels and blocks in the frequency bands 768 to 776 MHz and 798 to 806 MHz.

3.3. **Use of the 768 to 776 MHz and 798 to 806 MHz bands Outside the Sharing and Protection Zones**

Beyond 140 km from the border, the Agencies shall have primary use of these bands.

3.4 In the event that a station in one country causes harmful interference to a station in the other country, both Agencies shall take appropriate action to eliminate such interference.

4. Special Sharing Arrangements

In recognition of particular demographic circumstances, the Agencies agree on the unequal division of spectrum between Canada and the United States in the following two sectors of Sharing Zone I:

4.1. Sector 1

Sector 1 is defined to be the portion of Sharing Zone I in the United States and Canada bounded on the West by 85° W. longitude and on the East in Canada by 81° W. longitude and in the United States by 80° 30' W. longitude.

In this Sector, Canada shall have primary use of the frequencies listed in Annex A, Tables 3a and 3b. In this Sector, the United States shall have primary use of the frequencies listed in Annex A, Tables 4a and 4b. In this Sector, Canada and the United States shall have shared use of the channels listed in section 3.2.4.

4.2. Sector 2

Sector 2 is defined to be the portion of Sharing Zone I in the United States and Canada bounded on the East by 71° W. longitude and on the West in Canada by 81° W longitude and in the United States by 80° 30' W. longitude.

In this Sector, Canada shall have primary use of the frequencies listed in Annex A, Tables 5a and 5b. In this Sector, the United States shall have primary use of the frequencies listed in Annex A, Tables 6a and 6b. Within an area of 30 km radius from the centre city coordinates of London, Ontario, 42° 59' N. 81° 14' W., Canada shall have primary use the frequencies as defined in section 2.1 (protection zone). In this Sector, Canada and the United States shall have shared use of the channels listed in section 3.2.4.

5. Technical Limits

5.1. Within Sharing Zones I (including Sectors 1 and 2) and III, the Agencies may use their allotted portions of spectrum, subject to the Effective Radiated Power (ERP) and Effective Antenna Height (EAH) limits of Annex B, Table B1.

5.2. Within Sharing Zones II, the Agencies may use their allotted portions of spectrum, subject to the Effective Radiated Power (ERP) and Antenna Height Above Mean Sea Level (AMSL) limits of Annex B, Table B2.

5.3. Each Agency shall have primary use of the 768-776 MHz and 798-806 MHz bands within the Protection Zone in its respective country, subject to the condition that base stations not exceed the maximum Effective Radiated Power (ERP) and effective Antenna Height (EAH) limits of Annex B, Table B1.

5.4. Within the Sharing and Protection Zones, calculation of the limits on Effective Radiated Power (ERP) shall be based on the power radiated toward the horizon in the direction of the common border.

5.5. Each Agency may authorize stations which exceed the ERP limits specified in sections 5.1 through 5.4, provided the signal from such a station does not exceed a maximum power flux density (pfd) limit of -107dB(W/m^2)/25 kHz at and beyond the border and a maximum ERP of 500 watts in the direction of the common border. If the border falls over water, the pfd limit shall apply at the shore beyond the border.

(a) The Agencies shall require applicants or licensees under this provision to calculate the pfd described in section 5.5 using good engineering practice and generally accepted terrain-sensitive propagation models (with location and time variables of 10% and standard 3 arc-second digitized terrain data). Upon request by either Agency, the other Agency shall provide all data and calculations for determining compliance with this Arrangement

(b) In the event that the actual pfd at or beyond the border exceeds the value described in section 5.5, it is the responsibility of the licensee to bring the station's actual pfd into compliance with section 5.5 or bring the station into compliance with the power limits described in sections 5.1 through 5.4.

6. Coordination Necessitated by the Special Sharing Arrangements

6.1. As a result of the division of spectrum described in sections 4.1 and 4.2, portions of the bands allotted to both countries under this Arrangement overlap. Therefore, the Agencies shall coordinate the proposed frequency assignments in the overlapping portions in those bands, as described in sections 6.2 and 6.3 below, in accordance with the procedures specified in Arrangement A annexed to the Above 30 Agreement.

6.2. Coordination shall be required for assignments on the frequencies listed Annex A, Tables 7a and 7b in the following areas (see Annex C, Figure 1):

a) The geographical area in Canada enclosed by the United States-Canada border, the meridian 71° W.; and the line beginning at the intersection of 72° W. and the United States-Canada border, thence running North along meridian 72° W. to the intersection of 45° 45' N., thence running East along 45° 45' N. to the meridian 71° W., and

b) The geographical area in the United States enclosed by the United States-Canada border, the meridian 71° W.; and the line beginning at the intersection of 44° 25' N., 71° W., thence running by great circle arc to the intersection of 45° N., 70° W., thence North along meridian 70° W. to the intersection of 45° 45' N., thence running West along 45° 45' N. to the intersection of the United States-Canada border.

6.3. Coordination shall be required for assignments on the frequencies listed Annex A, Tables 8a and 8b in the following areas (see Annex C, Figure 2):

a) The geographical area in Canada enclosed by the meridian of 81° W. longitude, the arc of a circle of 100 km radius centered at 41° 58'N. latitude and 80° 30' W. longitude at the southern shore of Lake Erie and drawn clockwise from the northerly intersection with 81° W. longitude to intersect the United States-Canada border East of 80° 30' W., and the United States-Canada border; and

b) The geographical area in the United States enclosed by the meridian of 81° W. longitude, the arc of a circle of 100 km radius centered at 42° 39' 30" N. latitude and 81° W. longitude at the northern shore of Lake Erie and drawn clockwise from the southerly intersection with 80° 30' W. longitude to intersect the United States-Canada border West of 81° W., and the United States-Canada border.

Within an area of 30 km radius from the centre city coordinates of London, Ontario, 42° 59' N. 81° 14' W., Canada has primary access as defined in section 2.1 (protection zone).

7. Use of Frequencies Allotted to One Administration by the Other Administration

7.1 Frequencies allotted for primary use of one Agency may be assigned by the other Agency for use within the sharing zones in its country under the following conditions:

(a) The maximum power flux density (pfd) of the signal at and beyond the border of the primary user's country does not exceed -124 dB(W/m^2)/25 kHz.

(1) The Agencies shall require applicants or licensees under this provision to calculate the pfd described in section 7.1(a) using good engineering practice and generally accepted terrain-sensitive propagation models (with location and time variables of 10% and standard 3 arc-second digitized terrain data). Upon request by either Agency, the other Agency shall provide all data and calculations for determining compliance with this Arrangement.

(2) In the event that the measured pfd at or beyond the border exceeds the

value described in section 7.1(a), it is the responsibility of the licensee to bring the station's pfd into compliance with section 7.1(a).

(b) Stations authorized under this provision shall be considered as secondary and shall neither be granted protection against harmful interference from stations that have primary use of their authorized frequency, nor shall they cause harmful interference to stations having primary use of their authorized frequency, regardless of whether they meet the pfd values specified in 7.1 (a) above.

(c) Mobile stations exceeding 5 watts transmitter power output (TPO) shall not be operated in frequencies allotted for primary use of the other Agency within 30 km of the common border.

(d) Beyond 30 km of the common border, mobile stations operating in frequencies allotted for primary use of the other Agency must not exceed the pfd value specified in 7.1 (a).

(e) The documentation issued by each Agency authorizing such stations to use these frequencies shall include a clause stating that such authorization is subject to the following conditions:

(1) In the event that the measured signal at or beyond the border is found to exceed -124 dB(W/m^2)/25 kHz, the signal level shall be reduced accordingly;

(2) In the event that harmful interference occurs to any station that has primary use of the authorized frequency, regardless of signal strength, the licensee shall take immediate action to eliminate such interference. The Agency granting the authorization for secondary use shall ensure that remedial action is taken to resolve the harmful interference, up to and including revocation of the authorization.

8. *Information Exchange*

8.1 To facilitate the coordination requirements of this Arrangement, the Agencies shall either exchange information including, but not limited to: (1) licensee name(s); (2) licensed service areas; and (3) licensee point(s) of contact; or means to obtain the above information.

8.2 When necessary, the Agencies shall provide information to their respective licensees to facilitate the coordination requirements of this Arrangement.

8.3 To facilitate cross-border coordination between licensees, the Agencies shall encourage licensees to exchange data as listed in Annex D to this Arrangement.

ANNEX A

DISTRIBUTION/ALLOTMENT OF FREQUENCIES FOR GENERAL AND SPECIAL SHARING ARRANGEMENTS

Channelling Plan

Channels shall be 6.25 kHz wide for a total of 1920 channels. The channels can be combined. The frequencies corresponding to the lower and upper band edge of the channel number are defined by the following formulas, where n is the channel number:

Channel Number	Lower Edge (MHz)	Upper Edge (MHz)
1 to 960	$f_n = 769.0 + (0.00625)*(n-1)$ where n = 1 to 960	$f_n = 769.0 + (0.00625)*(n)$ where n = 1 to 960
961 to 1920	$f_n = 799.0 + (0.00625)*(n-961)$ where n = 961 to 1920	$f_n = 799.0 + (0.00625)*(n-960)$ where n = 961 to 1920

A1. In the Sharing Zones, except Sectors 1 and 2, Canada shall have primary use of the following channels and blocks:

Table 1a – Canada Primary Channels in Sharing Zones (except Sectors 1 and 2)

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
181 / 1141	To	182 / 1142
185 / 1145	To	198 / 1158
221 / 1181	To	222 / 1182
225 / 1185	To	238 / 1198
261 / 1221	To	262 / 1222
265 / 1225	To	278 / 1238
301 / 1261	To	302 / 1262
305 / 1265	To	318 / 1278
327 / 1287	To	634/ 1594
643 / 1603	To	656 / 1616
659 / 1619	To	660 / 1620
683 / 1643	To	696 / 1656
699 / 1659	To	700 / 1660
723 / 1683	To	736 / 1696
739 / 1699	To	740 / 1700
763 / 1723	To	776 / 1736
779 / 1739	To	780 / 1740

Table 1b – Canada Primary Blocks in Sharing Zones (except Sectors 1 and 2)

Base	Mobile
768 to 768.50 MHz	798 to 798.50 MHz
775 to 775.50 MHz	805 to 805.50 MHz

A2. In the Sharing Zones, except Sectors 1 and 2, the United States shall have primary use of the following channels and blocks:

Table 2a – U.S. Primary Channels in Sharing Zones (except Sectors 1 and 2)

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
13 / 973	To	22 / 982
25 / 985	To	38 / 998
41 / 1001	To	62 / 1022
65 / 1025	To	78 / 1038
81 / 1041	To	102 / 1062
105 / 1065	To	118 / 1078
121 / 1081	To	142 / 1102
145 / 1105	To	158 / 1118
161 / 1121	To	180 / 1140
201 / 1161	To	220 / 1180
241 / 1201	To	260 / 1220
281 / 1241	To	300 / 1260
321 / 1281	To	326 / 1286
635 / 1595	To	640 / 1600
661 / 1621	To	680 / 1640
701 / 1661	To	720 / 1680
741 / 1701	To	760 / 1720
781 / 1741	To	800 / 1760
803 / 1763	To	816 / 1776
819 / 1779	To	840 / 1800
843 / 1803	To	856 / 1816
859 / 1819	To	880 / 1840
883 / 1843	To	896 / 1856
899 / 1859	To	920 / 1880
923 / 1883	To	936 / 1896
939 / 1899	To	948 / 1908

Table 2b – U.S. Primary Blocks in Sharing Zones (except Sectors 1 and 2)

Base	Mobile
768.50 to 769 MHz	798.50 to 799 MHz
775.50 to 776 MHz	805.50 to 806 MHz

A3. In Sector 1, Canada shall have primary use of the following channels and blocks:

Table 3a – Canada Primary Channels in Sector 1

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
305 / 1265	To	318 / 1278
429 / 1389	To	532 / 1492
643 / 1603	To	656 / 1616

Table 3b – Canada Primary Channels and Blocks in Sector 1

Base	Mobile
768 to 768.15 MHz	798 to 798.15 MHz
775 to 775.15 MHz	805 to 805.15 MHz

A4. In Sector 1, the United States shall have primary use of the following channels and blocks:

Table 4a – U.S. Primary Channels in Sector 1

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
13 / 973	To	22 / 982
25 / 985	To	38 / 998
41 / 1001	To	62 / 1022
65 / 1025	To	78 / 1038
81 / 1041	To	102 / 1062
105 / 1065	To	118 / 1078
121 / 1081	To	142 / 1102
145 / 1105	To	158 / 1118
161 / 1121	To	182 / 1142
185 / 1145	To	198 / 1158
201 / 1161	To	222 / 1182
225 / 1185	To	238 / 1198
241 / 1201	To	262 / 1222
265 / 1225	To	278 / 1238
281 / 1241	To	302 / 1262
321 / 1281	To	428 / 1388
533 / 1493	To	640 / 1600
659 / 1619	To	680 / 1640
683 / 1643	To	696 / 1656
699 / 1659	To	720 / 1680
723 / 1683	To	736 / 1696
739 / 1699	To	760 / 1720
763 / 1723	To	776 / 1736
779 / 1739	To	800 / 1760
803 / 1763	To	816 / 1776
819 / 1779	To	840 / 1800
843 / 1803	To	856 / 1816
859 / 1819	To	880 / 1840
883 / 1843	To	896 / 1856
899 / 1859	To	920 / 1880
923 / 1883	To	936 / 1896
939 / 1899	To	948 / 1908

Table 4b – U.S. Primary Blocks in Sector 1

Base	Mobile
768.15 to 769 MHz	798.15 to 799 MHz
775.15 to 776 MHz	805.15 to 806 MHz

A5a. In Sector 2, Canada shall have primary use of the following channels and blocks:

Table 5a – Canada Primary Channels in Sector 2

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
101 / 1061	To	102 / 1062
105 / 1065	To	118 / 1078
141 / 1101	To	142 / 1102
145 / 1105	To	158 / 1118
181 / 1141	To	182 / 1142
185 / 1145	To	198 / 1158
211 / 1171	To	222 / 1182
225 / 1185	To	238 / 1198
241 / 1201	To	262 / 1222
265 / 1225	To	278 / 1238
281 / 1241	To	302 / 1262
305 / 1265	To	318 / 1278
321 / 1281	To	640/ 1600
643 / 1603	To	656 / 1616
659 / 1619	To	680 / 1640
683 / 1643	To	696 / 1656
699 / 1659	To	720 / 1680
723 / 1683	To	736 / 1696
739 / 1699	To	750 / 1710
763 / 1723	To	776 / 1736
779 / 1739	To	780 / 1740
803 / 1763	To	816 / 1776
819 / 1779	To	820 / 1780
843 / 1803	To	856 / 1816
859 / 1819	To	860 / 1820

Table 5b – Canada Primary Blocks in Sector 2

Base	Mobile
768 to 768.7 MHz	798 to 798.7 MHz
775 to 775.7 MHz	805 to 805.7 MHz

A6a. In Sector 2, the United States shall have primary use of the following channels and blocks:

Table 6a – U.S. Primary Channels in Sector 2

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
13 / 973	To	22 / 982
25 / 985	To	38 / 998
41 / 1001	To	62 / 1022
65 / 1025	To	78 / 1038
81 / 1041	To	100 / 1060
121 / 1081	To	140 / 1100
161 / 1121	To	180 / 1140
201 / 1161	To	210 / 1170
751 / 1711	To	760 / 1720
781 / 1741	To	800 / 1760
821 / 1781	To	840 / 1800
861 / 1821	To	880 / 1840
883 / 1843	To	896 / 1856
899 / 1859	To	920 / 1880
923 / 1883	To	936 / 1896
939 / 1899	To	948 / 1908

Table 6b – U.S. Primary Blocks in Sector 2

Base	Mobile
768.7 to 769 MHz	798.7 to 799 MHz
775.7 to 776 MHz	805.7 to 806 MHz

A7. In the areas listed in section 6.2, the following channels shall be coordinated in accordance with the procedures specified in Arrangement A annexed to the Above 30 Agreement:

Table 7a – Channels Requiring Coordination in Areas Listed in Section 6.2

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
101 / 1061	To	102 / 1062
105 / 1065	To	118 /1078
141 / 1101	To	142 / 1102
145 / 1105	To	158 / 1118
211 / 1171	To	220 / 1180
241 / 1201	To	260 / 1220
281 / 1241	To	300 / 1260
321 / 1281	To	326 / 1286
635 / 1595	To	640 / 1600
661 / 1621	To	680 / 1640
701 / 1661	To	720 / 1680
741 / 1701	To	750 / 1710
803 / 1763	To	816 / 1776
819 / 1779	To	820 / 1790
843 / 1803	To	856 / 1816
859 / 1819	To	860 / 1820

Table 7b – Blocks Requiring Coordination in Areas Listed in Section 6.2

Base	Mobile
768.50 to 768.70 MHz	798.50 to 798.70 MHz
775.50 to 775.70 MHz	805.50 to 805.70 MHz

A8. In the areas listed in section 6.3, the following channels shall be coordinated in accordance with the procedures specified in Arrangement A annexed to the Above 30 Agreement:

Table 8a – Channels Requiring Coordination in Areas Listed in Section 6.3

Base/Mobile Channels		
(base/mobile)	To	(base/mobile)
101 / 1061	To	102 / 1062
105 / 1065	To	118 /1078
141 / 1101	To	142 / 1102
145 / 1105	To	158 / 1118
181 / 1141	To	182 / 1142
185 / 1145	To	198 / 1158
211 / 1171	To	222 / 1182
225 / 1185	To	238 / 1198
241 / 1201	To	262 / 1222
265 / 1225	To	278 / 1238
281 / 1241	To	302 / 1262
321 / 1281	To	428 / 1388
533 / 1493	To	640 / 1600
659 / 1619	To	680 / 1640
683 / 1643	To	696 / 1656
699 / 1659	To	720 / 1680
723 / 1683	To	736 / 1696
739 / 1699	To	750 / 1710
763 / 1723	To	776 / 1736
779 / 1739	To	780 / 1740
803 / 1763	To	816 / 1776
819 / 1779	To	820 / 1790
843 / 1803	To	856 / 1816
859 / 1819	To	860 / 1820

Table 8b – Blocks Requiring Coordination in Areas Listed in Section 6.3

Base	Mobile
768.15 to 768.70 MHz	798.15 to 798.70 MHz
775.15 to 775.70 MHz	805.15 to 805.70 MHz

ANNEX B

LIMITS OF EFFECTIVE RADIATED POWER AND ANTENNA HEIGHT FOR GENERAL SHARING ARRANGEMENTS

Effective Radiated Power (ERP) is defined as the product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

B1. For base stations in Sharing Zones I (including Sectors 1 and 2) and III, and the Protection Zones, Table B1 lists the limits of Effective Radiated Power (ERP) corresponding to the Effective Antenna Height (EAH) ranges shown. In this case, Effective Antenna Height is calculated by subtracting the Assumed Average Terrain Elevation given in Table B3 from the antenna height above mean sea level.

Table B1

Limits of Effective Radiated Power (ERP) Corresponding to Effective Antenna Heights of Base Stations in Sharing Zones I (including Sectors 1 and 2) and III, and the Protection Zones

Effective Antenna Height (EAH) in Metres	ERP Watts (Maximum)
Up to 153	500
Above 153 to 306	125
Above 306 to 458	40
Above 458 to 610	20
Above 610 to 915	10
Above 915 to 1067	6
Above 1067	5

B2. For base stations in Sharing Zone II, Table B2 lists the limits of Effective Radiated Power (ERP) corresponding to the antenna height above mean sea level (AMSL) ranges shown.

Table B2
Limits of Effective Radiated Power (ERP) Corresponding to Antenna Heights Above Mean Sea Level of Base Stations in Sharing Zone II

Antenna Height Above Mean Sea Level (AMSL) in Metres	ERP Watts (Maximum)
Up to 504	500
Above 504 to 610	350
Above 610 to 763	200
Above 763 to 915	140
Above 915 to 1067	100
Above 1067 to 1220	75
Above 1220 to 1372	70
Above 1372 to 1523	65
Above 1523	5

B3. Table B3 lists the values of Assumed Average Terrain Elevations (AATE) within the Sharing and Protection Zones on both sides of the United States-Canada border.

EAH = Antenna Height Above Mean Sea Level - AATE

Table B3
Values of Assumed Average Terrain Elevation within the Sharing and Protection Zones on Both Sides of the United States - Canada Border

Longitude (φ) (°West)	Latitude (Ω) (°North)	Assumed Average Terrain Elevation			
		United States		Canada	
		Feet	Metres	Feet	Metres
$65 \leq \Phi < 69$	$\Omega < 45$	0	0	0	0
"	$45 \leq \Omega < 46$	300	91	300	91
"	$\Omega \geq 46$	1000	305	1000	305
$69 \leq \Phi < 73$	All	2000	609	1000	305
$73 \leq \Phi < 74$	"	500	152	500	152
$74 \leq \Phi < 78$	"	250	76	250	76
$78 \leq \Phi < 80$	$\Omega < 43$	250	76	250	76
"	$\Omega \geq 43$	500	152	500	152
$80 \leq \Phi < 90$	All	600	183	600	183
$90 \leq \Phi < 98$	"	1000	305	1000	305
$98 \leq \Phi < 102$	"	1500	457	1500	457
$102 \leq \Phi < 108$	"	2500	762	2500	762
$108 \leq \Phi < 111$	"	3500	1066	3500	1066
$111 \leq \Phi < 113$	"	4000	1219	3500	1066
$113 \leq \Phi < 114$	"	5000	1524	4000	1219
$114 \leq \Phi < 121.5$	"	3000	914	3000	914
$121.5 \leq \Phi$ 127	"	0	0	0	0
$\Phi \geq 127$	$54 \leq \Omega < 56$	0	0	0	0
"	$56 \leq \Omega < 58$	500	152	1500	457
"	$58 \leq \Omega < 60$	0	0	2000	609
"	$60 \leq \Omega < 62$	4000	1219	2500	762
"	$62 \leq \Omega < 64$	1600	488	1600	488
"	$64 \leq \Omega < 66$	1000	305	2000	609
"	$66 \leq \Omega < 68$	750	228	750	228
"	$68 \leq \Omega < 69.5$	1500	457	500	152
"	$\Omega \geq 69.5$	0	0	0	0

B4. Table B4 lists cities in the United States and Canada that, for the purposes of this agreement, shall be considered as falling outside of Sharing Zone I but within the Protection Zone. These cities are defined as circles with a 30 km radius around the center coordinates listed.

Table B4
Cities in the United States and Canada that for purposes of this arrangement shall be considered as falling outside of Sharing Zone I but within the Protection Zone

Location	Coordinates (NAD83)	
	Latitude	Longitude
Akron, Ohio	41° 05' 00.2" N.	81° 30' 39.4" W.
Youngstown, Ohio	41° 05' 57.2" N.	80° 39' 01.3" W.
Syracuse, New York	43° 03' 04.2" N.	76° 09' 12.7" W.
Kitchener-Waterloo, Ontario	43° 27' 30.2" N.	80° 29' 59.4" W.
Peterborough, Ontario	44° 18' 00.2" N.	78° 18' 59.2" W.
London, Ontario	42° 59' 00.0" N.	81° 14' 00.0 W.

ANNEX C

BAND OVERLAP COORDINATION AREAS

AREAS IN WHICH COORDINATION IS REQUIRED

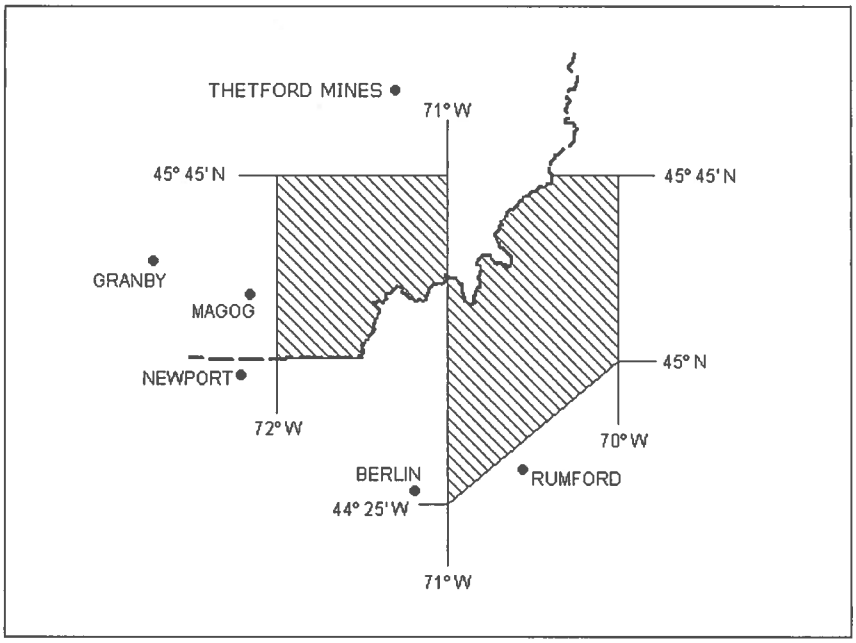

Figure 1

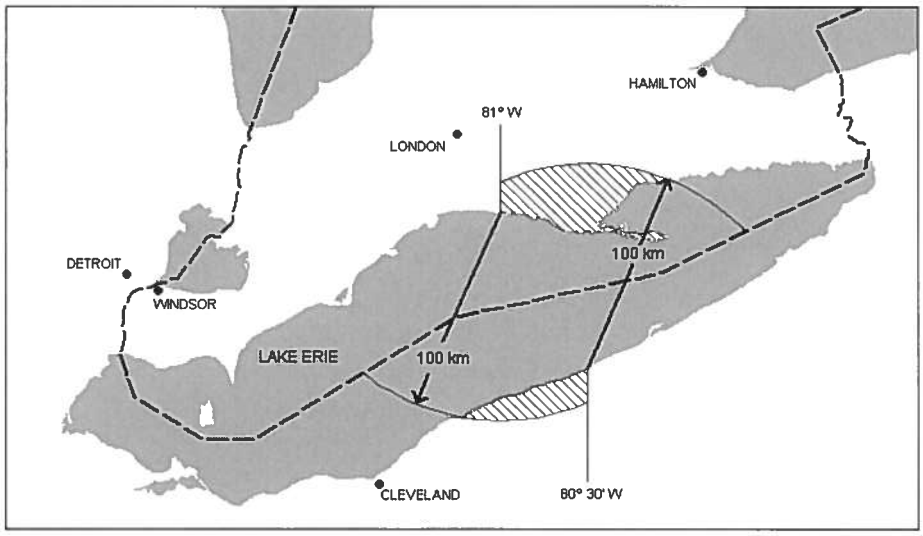

Figure 2

ANNEX D

PARAMETERS FOR COORDINATION

Licensee information (Corporate name/Mailing address/Phone/Fax/Email address)
Location of transmitter (Community/State/Province)
Geographical coordinates of transmitting antenna (NAD83)
Equivalent Radiated Power (ERP) (dBW)
Ground elevation and antenna height above ground (m)
Center frequency (MHz)
Polarization
Antenna pattern/tabulation of the pattern
Azimuth of the maximum antenna gain
Bandwidth and emission designation